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Synopsis of Chinese Salix

by Kin-Shen Hao

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Introduction.

Larger than Europe is the area of China in which many parts, at present, as we know, have not yet been intensively explored from a botanical stand point, and there but few regions such as Szechuan and Kwangtung that may be considered to be botanically well known. Awaiting with keen anticipation the completion of the work, Flora of China, having published the Synopsis of Chinese Populus in Contribution of Institute of Botany Vol. III. No. 5 (1935), now I attempt to be able to offer a little of my study on the Chinese species of the genus *Salix* which is also usually difficult to the botanists who have been interesting in the classification of plants collected from this country or who have been working on this family. Of course, this is not at all an so exact work to systematize the *Salix* of China as we desire, since species particularly the male catkins belonging to the genus appear their flowers such as commonly in the early spring when our collectors for the botanic purpose are still living in the house, therefore, as far as I have seen, the material of the not yet determined examples as well as of the already described type specimens, contains usually only one sexual mostly pistillate catkins, so that we botanists of today can do some incomplete work as here having been given only on the present material and the perfect offering should be waited for the botanists of tomorrow.

I am deeply indebted to Professor L. Diels, Director of Botanic Garden and Botanic Museum in Berlin, for his assistance in borrowing the type specimens from the following various herbaria such as Royal Botanic Garden of Edinburgh, the Arnold Arboretum in Jamaica Plain, United States of Amerika, Naturhistorisches Museum in Wien and Royal Botanic Garden at Kew; to Professsor S. S. Chien for his kindness in sending some type specimens recently described and preserved in The Science Society of China, Nanking and to Professor T. N. Liou for his permission to let me determine all the *Salix* species collected in the last five years and keeped in the Institute of Botany, National Academy of Peiping (Peking). I am also under obligations to my old friend Mr. W. Y. Yen who has holpen me to see the few type specimens from Museum National d'Histoire Naturelle, Paris, and to Mr. W. C. Cheng who has sent me some of his paper regarding to the genus. Finally, I wish to express my appreciation of the valuable assistance of my wife, W. M. Chao, in helping to prepare the manuscript for publication.

K. S. Hao.

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Description of the genus Salix.

Deciduous shrubs or trees rarely evergreen, with usually terete branches; winterbuds with a single scale; leaves alternate, rarely subopposite, simple, petiolate or sessile, mostly lanceolate or oblong rarely ovate or linear; margin entire, serrate or dentate; stipules often developed, free, chiefly on the vigorous branches, small or sometimes foliaceous, deciduous or persistent; flowers dioecious arranged in erect or pendulous catkins, often appearing before or after or with the leaves; each flower in the axil of a bract or scale; bracts membranaceous, fugacious or persistent; calyx absent or represented by a small cupular disk or 1 to 2 glands (glandular scale); each male flower with 1—2 to many stamens; filaments slender free or sometimes connate, usually exceeding the bract; anthers 2-celled, opening lengthwise; female flower having a single ovary, composed of 2 carpels, sessile or pedicelled; ovary 1-celled, with 2—4 parietal placentas; style short or slender with entire or 2 bifid stigmas; ovules numerous, ascending, anatropous; capsule 2-valved; seeds numerous, small or minute, with numerous fine hairs arising from the funicle and enveloping the seed; endosperm none; embryo straight.

About 350 species chiefly in the colder and temperate regions of the north hemisphere, few in south hemisphere, but absent from Australia and Malay Archipelago, in China about 190 species having been recorded.

Commonly cultivated as ornamental shade trees, much planted on account of their rapid growth and the easy propagation by cutting; the flexible branches of some species are used in macking baskets; the bark has within the tannic acid and salicin.

Salix is a very variable genus of which we can not find an absolute character between the species from each other; on a same catkin stamens are usually variable in number as in S. *cantoniensis* Hance, of which the lowerst flowers on the catkins have 5—7 stamens, while the upper most have only 2 or 3; and also on a same catkin there growing two kinds of flowers, male and female such as in S. *Delavayana* Handel-Mazzetti and from species to species there should be many intermediate forms too.

General key to the groups and species.

1. Stamens 3—12; flowers male and female with two glands, one dorsal and one ventral, these glands well developed or distincly lobed or forming a pseudodisk surrounding the base of pedicel; ovary long pedicelled, quite glabrous rarely pilose.
   2. Stamens usually 3 rarely more — Sect. 1. *Triandrae.*
      3. Leaves on the peduncle of catkins entire, the nerves on the upper side very prominent and elevated, showing white or yellow colour; staminate and pistillate bracts elliptic-oblong, outer side only near the base somewhat pilose — 1. *S. nipponica* Franch.
      3. Leaves on the peduncle of catkins serrate; staminate bracts orbicular, outer side wholly pilose; pistillate bracts elliptic-oblong — 2. *S. triandra* Linnaeus.
   2. Stamens more than 3.
      3. Staminate bracts about 2 times as long as filaments; filaments very short, unepual including in the bract; glands ventral and dorsal forming a lobed pseudodisk; leaves petioles branches and rachis all densely white tomentose when young; pistillate catkins not known — Sect. 2. *Urbanianae.* — 3. *S. angiolepis* Léveillé.
      3. Staminate bracts 1/5—1/2 as long as the filaments.
         4. Staminate catkins loosely flowered, the internode between thd flowers slightly longer than the bracts, that is to say, distinctly to be seen by the naked eye; female flower with ventral gland present, in 4. *S. wilsoni* sometimes with a very small dorsal gland; male flower with separated glands, not forming a pseudodisk; leaves narrow-attenuate at the base — Sect. 3. *Wilsonianae.*
            5. Petioles distinctly glandular at the apex, in 4. *S. Wilsoni* the glands very small; ovary and capsule suborbicular or elliptic.
               6. Stamens glabrous; pistillate bracts outside glabrous, elliptic-oblong; petioles indistinctly glandular at apex; leaves thin in texture — 4. *S. Wilsoni* Seemen.
               6. Stamens pilose below the middle.
                  7. Bracts orbicular, outer side near the base villose; stipules linear; mature leaves whitish beneath — 5. *S. dictyoneura* Seemen.
                  7. Bracts triangular; stipules reniform; mature leaves light green beneath — 6. *S. Rosthornii* Seemen.
            5. Petioles not glandular at apex; ovary and capsule linear-lanceolate; filaments glabrous — 7. *S. Dunnii* Schneider.

4. Staminate catkins densely flowered, the internode almost wholly covered by the bracts and filaments; flowers male and female having 2 glands, those glands well developed and sometimes forming into a disk; leaves roundet, broad-attenuate or cordate at base.
5. Catkins very elongated, slender, cylindrical, excluding the peduncle mostly 8—10 cm long, sessile or subsessile; staminate flowers subverticillate; bracts densely white tomentose on both sides; glands of pistillate flowers forming a pseudodisk — Sect. 4. *Tetraspermae.*
6. Stamens 8—9.
7. Leaves 6—16 cm long, long acuminate; petioles 1—1,5 cm long — 8. *S. tetrasperma* Roxburgh.
7. Leaves much smaller, acute at apex; petioles only to 7 mm long or much shorter — 9. *S. pyrina* Wallich.
6. Stamens 5—6 — 10. *S. araeostachya* Schneider.
5. Catkins only to 7 cm long, more or less pedunculat.
6. Leaves linear-lanceolate; petioles short only to several mm long — Sect. 5. *Dodecandrae.*
7. Bracts membranaceous glabrous, much longer than the ovary — 11. *S. macrolepis* Turczaninow.
7. Bracts not membranaceous, much shorter than the ovary.
8. Leaves at catkin-peduncle densely yellowish silky below; stamens 7—12, villose at base; bracts ovate-oblong obtuse, 2 different glands forming a nearly 4-lobed disk; pedicels as long as the bracts — 12. *S. dodecandra* Léveillé.
8. Leaves glabrous glaucous beneath.
9. Bracts acuminate; stamens variable in number, the lower flowers on the catkins having 5—7 stamens, those on the upper most having 2—3 stamens — 13. *S. cantoniensis* Hance.
9. Bracts ovate at apex; bark covered with withe bloom becoming schaggy like that of an *Eucalyptus;* leaves lanceolate, nerves distinctly yellow or brown; male flowers not known — 14. *S. eucalyptoides* Meyer.
6. Leaves ovate, elliptic-oblong to lanceolate, rounded or cordata at base; petioles 1—1,5 cm long; glands forming a disk surrounding the base of pedicel — Sect. 6. *Pentandrae.*
7. Pedicels as long as the bracts or slightly longer than bracts.
8. Stamens 8—12, glabrous; bracts elliptic-oblong, glabrous without; all the filaments first adnate to the bract-base from which then to the rachis; stamens erect straight not curved; leaves lanceolate, long acuminate capsule elliptic-acute about 5,5 mm long, glabrous — 15. *S. Cavaleriei* Léveillé.
8. Stamens 5, pilose below; bracts ovate, glabrous without; filaments all adnate to the rachis, more or less reflexed not so straight and so erect as those in *S. cavaleriei;* leaves elliptic-ovate to elliptic-lanceolate, acute at apex; capsule obovate, acute, 3 mm long, 2 mm in diameter; petioles glandular at apex — 16. *S. glandulosa* Seemen.
7. Pedicels much shorter than the bracts.
8. Leaves white or glaucous beneath, deeply cordate at base; pistillate catkins up to 12 cm long when ripe in fruits; capsule

3—4 mm long — 17. *S. Maximowiczii* Komarov.

8. Leaves light green beneat, attenuate to rounded but not cordate at the base; capsule 6—7 mm long.

9. Catkins 2—4 cm long; style distinct — 18. *S. pentandra* Linn.

9. Catkins 4—6 cm long; stigma sessile, without distinct style — 19. *S. paraplesia* Schneider.

1. Stamens 2, filaments free.

2. Staminate flowers having both ventral and dorsal glands present.

3. Prostrata dwarf shrubs; leaves small, pale below, lanceolate, oblanceolate to ovate-spathulate, margin entire or serrate, 3—12 mm long, 2—7 mm broad; female flowers most with one ventral gland; ovary glabrous, short pedicelled, style short bifid at apex, stigma 2-parded — Sect. 7. *Lindleyanae.*

4. Leaves serrate or crenate or only serrate et apex never entire.

5. The two stamens about equal long, bracts $^2/_3$ as long as filaments; ovary sessile; leaves green beneath, both sides quite glabrous.

6. Leaves ovate only to 3 mm long, 2,5 mm broad, truncate and 3-5-toothed at apex, the whole plant up to 3—4 cm tall, the most small prostate willow in the alpine regions; bracts spathulate — 20. *S. secta* Hooker f.

6. Leaves obovate to oblong-lanceolate, attenuate into a petiole, to 6—8 mm long, 3—4 mm broad, acuminate at apex, erect shrub up to 20 cm tall; bracts orbicular — 21. *S. oreophila* Hooker f.

5. The two stamens 2 times as long as bracts, unequal in length; ovary pedicelled (in 22. *S. crenata* not yet known); leaves glaucous beneath.

6. Prostrate shrub densely branched, spreading over the ground; bracts distinctly 3-nerved, yellow in colour, papyraceous; staminate catkins headlike, consisting of only several flowers — 22. *S. crenata* Hao.

6. Erect shrub up to 30 cm tall; leaves obovate or suborbicular-elliptic.

7. Rachis hirsute; bracts truncate at apex; ovary glabrous without style, subsessile — 23. *S. hirticaulis* Handel-Mazzetti.

7. Rachis glabrous; bracts ovate at apex; ovary glabrous with distinct style and stigma — 24. *S. piptotricha* Handel-Mazzetti.

4. Leaves entire (in 26 *S. brachista* sometimes crenate).

5. Plants with distingt or visible branches, that is to say, the branches not wholly covered by the dense leaves when dry in the theet; suberect shrubs; leaves at least as long as 6 mm.

6. Filaments pilose below the middle or at the base; ovary short pedicelled.

7. Leaves spathulate, greenish beneath; bracts more or less truncate; petioles about $^1/_2$ as long as the leaf; ventral gland of female flower as long as pedicel; glands of male flowers very small; ovary without distinct style — 25. *S. Lindleyana* Wallich.

7. Leaves ovate, glaucous beneath; bracts with long style and slender stigma; petioles much shorter.
8. Bracts oblong 2/3 as long as the ovary; ovary with slender stigma; leaves with distinctly elevated nerves beneath; bracts elliptic-oblong 1/2 as long as filament — 26. *S. brachista* Schneider.
8. Bracts orbicular at base of the ovary; stigma short or nearly wanting; leaves without distinct nerves beneath; bracts 1/4 as long as the filament — 27. *S. clathrata* Handel-Mazzetti.

6. Filaments glabrous; leaves with wrinkled nervet above, glaucous be neath; petioles very short; female specimens net yet known — 28. *S. Souliei* Seemen.

5. Plants without distinct branches, that is to say, all the branches or stems are almost covered by dense leaves; plants prostrate, spreading over the ground quite like a mat, up to 3—5 cm tall; leaves very small scale-like, usually under 4 mm in length.
6. Bracts nearly as long as filament; leaves ovate at apex; filament glabrous — 29. *S. ovatomicrophylla* Hao.
6. Bracts 1/2 as long as filament; leaves acuminate at apex; filament pilose below — 30. *S. acuminatomicrophylla* Hao.

3. Erect shrubs or trees.
4. Leaves ovate-spathulate or obovate, margin crenate-denticulate, both sides glabrous, 1—4 cm long, 0,6—3.5 cm broad, dark green above, glaucous beneath, usually ovate at apex; petioles 1/3 as long as the leaves; Catkins terminal at short branches; branches glabrous (except 38. *S. coggygria* of wich the branches are tomentose when young); ovary sessile (in 31. *S. calyculata* Hooker f. long pedicelled), pilose or glabrous — Sect. 8. *Floccosae.*
5. Ovary long pedicelled; the pedicel much longer than the glabrous ovary; leaves spathulate ovate, 8—15 mm long, 6—9 mm broad, lustrous glabrous above, slightly glaucous beneath; bracts ligulate obovate, glabrous; stamens 2 times as long as bracts, filaments glabrous; pistillate catkins elliptic in outline; ventral gland of male flower 1/2 as long as bract — 31. *S. calyculata* Hooker f.
5. Ovary sessile; filaments more or less pilose (in 33. *S. flabellaris* and 32. *S. oreinoma* the filament also glabrous, quite similar tu 31. *S. calyculata* but distinguished by the sessile ovarv).
6. Filament glabrous.
7. Oyary pilose with slender style; rachis villose; leaves elliptic — 32. *S. oreinoma* Schneider.
7. Ovary glubrous, style short or nearly wanting; rachis glabrous; leaves obovate — 33. *S. flabellaris* Andersson.
6. Filament pilose, at least so at the base (in 34. *S. resectoides* the filaments not known).
7. Stigma very short without distinct style; ovary glabrous; bracts more or less truncate.
8. Leaves entire or remotely denticulate, brownish pilose above — 34. *S. resectoides* Handel-Mazzetti.
8. Leaves serrate or crenate-denticulate, glabrous above — 35. *S. microphyta* Franch.

7. Stigma slender with distinct style (in 36. *S. annulifera* the ovary without style).
8. Filament wholly pilose; ovary sessile, without style, with 2 slender and reflexed stigma; leaves spathulate broad ovate, 3—4 cm long, 2,5—3,5 cm broad, capsule pubescent about 4,5 mm long — 36. *S. annulifera* Marquand.
8. Filament only pilose at base; style about as long as the slender stigma.
9. Ovary glabrous; leaves obovate-elliptic to elliptic-oblong, 1,5—3,5 cm long, 1—2,3 cm broad, both sides glabrous; branches glabrous — 37. *S. Faxoniana* Schneider.
9. Ovary pilose; leaves sericeous, sparingly hairy or silky, at least so beneath when young.
10. Branches tomentose; leaves suborbicular-obovate, 1,5—4,5 cm long, roundet or obtuse at apex, upper surface green sparingly pilose, lower surface silky becoming smooth; catkins 3—4 cm long, 7—14 mm thik — 38. *S. coggygria* Handel-Mazzetti.
10. Branches smooth: leaves obovate-elliptic, 2—4 cm long, 1,5—2 cm broad, glabrous above, sericeous or glabrous beneath; catkins only to 2,5 cm long quite slender — 39. *S. floccosa* Burkill.

4. Leaves lanceolate, if broad elliptic or obovate the margin must be very inciso-serrate (Sect. *Berberifoliae*) or the blade much larger 6—15—(23) cm long (Sect. *Allochroae* and Sect. *Magnificae*).
5. Leaves ovate, obovate to elliptic-oblong.
6. Margin of the leaves unqually Inciso-serrate, these teeth along the margin well distinguished, triangular; ovary glabrous and pedicelled; filaments glabrous; the blade small, 1—1,3 cm long, about 8 mm broad; catkins 1—2 cm long — Sect. 9. *Berberifoliae.*
7. Catkins headlike; bracts with long and dense hairs; the teeth along the leafmargin regularly serrate obout 2 mm long — 40. *S. berberifolia* Pallas.
7. Catkins oblong, about 1,5 cm long; bracts more glabrous, without long hairs; teeth along the margin irregular and smaller — 41. *S. Brayi* Ledebour.
6. Margin of the leaves entire rarely serrate; the blade elliptic-oblong, 6—15 cm long; catkins up to 18 cm long.
7. Ovary quite glabrous — Sect. 10. *Magnificae.*
8. Leaves entire almost coriaceous at maturity, the larger ones to 22,5 cm long, 15 cm broad, both surfaces glabrous, cordate or rounded at base; catkins 10—12 cm long, in fruits to 18 cm; rachis bracts and filaments all glabrous — 42. *S. magnifica* Hemsley.
8. Leaves serrate.
9. Bracts quite glabrous; rachis ovary pedicel and branches all glabrous; leaves elliptic-oblong, 6—12 cm long, acute or short acuminate, rounded et base, margin glandular-serrulate, glabrous above, light green reticulate or silky on the veins beneath; catkins 6—14 cm long (if rachis sericeous, bracts truncate at apex; see also 44. *S. pella* Schneider) — 43. *S. moupinensis* Franchet.
9. Bracts much hairy.

10. Leaves narrow-ovate or subelliptic, 7—15 cm long, 4—6 cm broad, glabrous above, pilose or silky below, attenuate at base, margin slightly serrulate; bracts orbicular, pilose and ciliate; ovary linear-lanceolate — 45. *S. Fargesii* Burkill.

10. Leaves broad—ovate or obovate; roundet or cordate at base.

11. Leaves remotely glandular-serrate, or entire below the middle, 3—6 cm long, 18—35 mm broad, the larger ones to 11 cm long, acute at apex, roundet at base — 46. *S. omeiensis* Schneider.

11. Leaves densely glandular-serrulate, 8—10 cm long, 5—7 cm broad, obtuse at apex, cordate at base, both surfaces glabrous, along the nerves beneath more or less hairy — 47. *S. Cansuensis* Hao.

7. Ovary tomentose, bracts and rachis also tomentose — Sect. 11. *Allochroae.*

8. Catkins slender, 3,5 cm long, 5 mm thick; ovary small sessile about 1 mm long, ovate-elliptic — 48. *S. amphibola* Schneider.

8. Catkins 9—14 cm long, about 1,5 cm thick; ovary much larger and dicker.

9. Leaves tomentose beneath, margin distinctly serrate; young branches tomentose — 49. *S. argyrophegga* Schneider.

9. Leaves glabrous beneath, margin entire or remotely glandular-serrulate; young branches glabrous (see also 50. *S. ulotricha* Schneider) — 51. *S. allochroa* Schneider.

5. Leaves lanceolate to linear-lanceolate; staminate flower with 2 glands, one ventral and one dorsal.

6. Ovary and pedicel glabrous (except 55. *S. dolichostyla* Seemen).

7. Catkins slender densely flowered, sessile or nearly so, 2—6 cm long, 3—6 mm thick; bracts orbicular or ovate; shrubs — Sect. 12. *Tetradeniae.*

8. Leaves entire narrow elliptic-lanceolate, obtuse at apex, subrounded at base, green above, glaucous and glabrous beneath, 1—1,5 cm long, 2—4 mm broad; petioles 1—2 mm long; female flower having 2 glands which are similar each other 2-parted; filaments pilose below the middle; bracts as long as the ovary — 52. *S. tenella* Schneider.

8. Leaves glandular-serrate or revolute denticulate rarely entire, more or less pilose on both surfaces; 3—5 cm long, 1—1,5 cm broad.

9. Rachis hirsute-tomentose; male flower with 4 glands, ventral and dorsal; leaves elliptic, rounded at both ends, silkyor glaucous-pruinose beneath; bracts obovate-spathulate, both sides glabrous. 53. *S. tetradenia* Handel-Mazzetti.

9. Rachis nearly glabrous; male flower with 2 glands; leaves broad-lanceolate, acuminate at apex, sparingly long hairy beneath; petioles 5 mm long, loosely pilose — 54. *S. Guebrianthiana* Schneider.

7. Catkins 1,5—2 cm long, with 3—4 small leaves at the base, loosely flowered, bracts acute or retuse at apex; trees — Sect. 13. *Fragiles.*

8. Ovary pilose or silky with 2 glands at base (see also 57. *S. Matsudana*); style slender with 2 reflexed stigma; bracts ovate or retuse

at apex; leaves at the catkin-peduncle serrate —
55. *S. dolichostyla* Seemen.

8. Ovary glabrous.
9. Bracts linear-lanceolate, glabrous without, but ciliate along the margin; leaves attenuate at base — 56. *S. babylonica* Linn.
9. Bracts triangular, pubescent without; leaves rounded or obtuse at base — 57. *S. matsudana* Koidzumi.

6. Ovary and pedicel pilose or tomentose.
7. Petioles 1—2 cm long; leaves tomentose or densely hairy and silky, at least so on the lower surface, long acuminate at apex; style short with long stigma; ovary tomentose sessile — Sect. 14. *Ernestiae.*
8. Bracts $^1/_2$ as long as the filament or as long as the ovary; filament wholly pilose (in 60. *S. ernesti* pilose only below the middle); stigma slender, without distinct style between ovary and stigma.
9. Bracts broad-ovate, rounded with 2—3 glands at apex, yellowish brown; catkins 10—12 cm long; leaves ovate-lanceolate, obtuse or rounded at base, silky tomentose, long acuminate, 6—11 cm long, the longer ones to 15—22 cm long, stipules semicordate, glandular-dendate; filaments wholly pilose, glands incised or 2-fid — 58. *S. phanera* Schneider.
9. Bracts without glands at apex; stigma 2, slender, adnate directly to the ovary, without style between ovary and stigma.
10. Filament wholly pilose; bracts truncate at apex; female flower having one gland at base of the ovary; leaves remotely serrate — 59. *S. bistyla* Handel-Mazzetti.
10. Filament pilose below the middle; bracts ovate at apex; female flower having 2 glands, the ventral and the dorsal; leaves entire — 60. *S. Ernesti* Schneider.

8. Bracts $^1/_4$ to $^1/_3$ as long as filaments or shorter than the ovary; style present betwenn the slender stigma and the tomentose ovary.
9. Filament wholly pilose; glands 2 often bifid, $^1/_2$ as long as the bract; leaves lanceolate, dark green sparingly hairy above, silvery pilose beneath, margin entire, 3—7 cm long, the larger ones 9—15 cm long; catkins 8—10 cm long, 5 mm thick; the 2 glands of male flower sometimes forming into a 3—4—parted pseudo-disk; style $^1/_2$ as long as the ovary — 61. *S. phaidima* Schneider.
9. Filament pilose at base (in 63. *S. Forrestii* not known).
10. Leaves remotely glandular-serrate; petioles 1—1,5 cm long; catkins slender, 5—9 cm long, with 3—4 normal leaves at its base, branches nearly-glabrous — 62. *S. plocotricha* Schneider.
10. Leaves entire; petioles about 5 mm long, densely tomentose; catkins shorter and dicker, to 5 cm long, 9—12 mm thick, without normal leaves at its base, branches densely white tomentose — 63. *S. Forrestii* Hao.

7. Petioles very short or nearly wanting; leaves small, during flowering time ∅ only 8—20 mm long; both style and stigma short — Sect. 15. *Eriocladae.*
8. Female flower having 2 glands at base of the ovary, these glands more or less lobed at apex; male flower also with 2 lobed glands; bracts truncate or retuse at apex; catkins 8—20 mm long, 5—6 mm thik.

9. Filament about 5 times as long as bracts; bracts 1/3 as long as the ovary — 64. *S. clerophylla* Andersson.
9. Filament only 2 times as long as bracts; bracts as long as the ovary — 65. *S. atopantha* Schneider.

8. Female flower with one gland at base of the ovary, these glands cylindrical not lobed at apex; those glands of male flower also cylindrical (except 67. *S. psilostigma* Andersson); bracts ovate at apex; catkins 2—6 cm long, densely flowered.
9. Leaves entire.
10. Staminate glands ovoid-cylindrical; style about as long as the stigma; bracts elliptic, acut at apex; leaves rounded at base, obtuse or rounded at apex — 66. *S. erioclada* Léveillé.
10. Staminate glands 2—3—lobed at apex; style wanting, stigma short; bracts orbicular, ovate at apex; leaves lanceolate, both ends acute. — 67. *S. psilostigma* Andersson.
9. Leaves serrate or crenate.
10. Filament glabrous; ovary with distinct style; bracts elliptic ovate at apex, 1/2 as long as filament or as long as the ovary — 68. *S. sericocarpa* Andersson.
10. Filament pilose at base; ovary with distinct style; bract orbicular, retuse at apex — 69. *S. jessoensis* Seemen.

2. Staminate flowers having only one ventral gland present, without dorsal gland (in 77. *S. dissa* with 2 glands).
3. Leaves ovate to obovate-elliptic, both ends obtuse, margin entire, 15—30 mm long, 12—20 mm broad; catkins short 10—15 mm long, 6—8 mm thik (except 72. *S. phylicifolia*); petioles 1/3 to 1/2 as long as the leaves; ovary sessile pilose — Sect. 16. *Biondianae.*
4. Female flower with 2 glands, these glands well developed 2—3 irregularly parded.
5. Ovary and branches glabrous — 70. *S. cupularis* Rehder.
5. Ovary crispo-villose, branchlets greyish-tomentose (see also 70. *S. cupularis* var. *lasiogyne* Rehder) — 71. *S. oritrepha* Schneider.
4. Female flower only with one ventral gland.
5. Filament glabrous; ovary lanceolate-elliptic; bracts 1/3 as long as the filaments or at the base of the ovary — 72. *S. phylicifolia* L.
5. Filament pilose at base; ovary orbicular; bracts 2/3 as long as filament or 1/2 as long as the ovary (see also 73. *S. amnematchinensis* Hao) — 74. *S. Biondiana* Seemen.
3. Leaves linear-lanceolate to lanceolate or elliptic-oblong, if ovate-elliptic the margin must be serrate with short petioles and the catkins slender, margin serrate rarely entire; ovary pedicelled rarely sesille, glabrous or pilose.
4. Ovary glabrous (in 100. *S. spathulifolia* Seemen pilose).
5. Ovary sessile or very short pedicelled.
6. Leaves ovate-oblong, margin entire (except 75. *S. characta*), petioles short 2—5 mm long; both ends obtuse or acute; catkins slender, 2—4,5 cm long, 4—6—(8) mm thick, terminal at short branches, pedunculate; staminate catkins loosely flowered — Sect. 17. *Tangiae.*
7. Margin serrate; leaves lanceolate, both ends acute, glabrous,

slightly puberulous along the nerve beneath, 1,5—4,5 cm long, 5—12 mm broad, catkins 2,5 cm long, female flower pedicelled; style 2/3 as long as the ovary — 75. *S. characta* Schneider.

7. Margin entire.
  8. Leaves oblong or elliptic-lanceolate.
    9. Bracts both sides white pilose; catkins in fruits 6—8 cm long; leaves spathulate-oblong, 1,5—4,5 cm long, 6—11 mm broad, glabrous — 76. *S. melea* Schneider.
    9. Bracts both sides glabrous.
      10. Catkins 4—5 cm long with 3—6 normal leaves at its base; the staminate one quite slender, loosely flowered; leaves glaucous beneath, oblong-elliptic, both ends obtuse, 1—1,5 cm long, 5—6 mm broad — 77. *S. dissa* Schneider.
      10. Catkins 2,5—3 cm long; staminate catkins not known; leaves narrow lanceolate or elliptic-lanceolate, roundet or subcordate at base, whitish or glaucous beneath, 4—5 cm long to 2 cm broad — 78. *S. macroblasta* Schneider.
  8. Leaves elliptic or ovate not elliptic-lanceolate.
    9. Stipules broad ovate, about 3 mm long, margin dentate; pistillate catkins erect 2,5—4,5 cm long, rachis slender slightly yellowish pilosulate, ventral gland nearly as long as the bract — 79. *S. vaccinioides* Handel-Mazzetti.
    9. Stipules linear.
      10. Bracts both surfaces pilose; style devided into 2 bilobed stigma; leaves broad elliptic, 1,5—2 cm long, 9—15 mm broad; petioles sericeous — 80. *S. mictotricha* Schneider.
      10. Bracts both surfaces glabrous, style and stigma not distinct to be seen; leaves elliptic; petioles glabrous or nearly so.
        11. Leaves glaucous beneath; ventral gland incised at apex — 81. *S. hypoleuca* Seemen.
        11. Leaves light grenn beneath; ventral gland cylindrical — 82. *S. Tangii* Hao.

6. Leaves lanceolate to oblong rarely obovate; petioles (of mature leaves) 5—12 mm long; catkins 2—4—7 cm long, 6—10 mm thik (except 85. *S. rhoophila*), with several very small lower side pilose or silky leaves at its base, those leaves at the pistillate catkin-base sometimes well developed into the normal form, during flowering time these leaves only 1—1,5 cm long, 4—6 mm broad — Sect. 18. *Cathayanae*.
  7. Normal leaves oblong or elliptic oblong, usually small, 15—35 mm long, 6—12 mm broad, margin quite entire.
    8. Bracts pilose or villose; leaves long hairy or silky beneath at least so when young.
      9. Pistillate catkins 2—3 cm long, about 4 mm thick, densely flowered, with sericeous rachis, leaves acute — 83. *S. polyclona* Schneider.
      9. Pistillate catkins somewhat shorter and thicker; leaves obtuse — 84. *S. luctuosa* Léveillé.
    8. Bracts glabrous on both sides; leaves also glabrous.
      9. Catkins 3 mm thik, 12—25 mm long; rachis slightly villose — 85. *S. rhoophila* Schneider.

9. Catkins 4—7 cm long, 5—6 mm thik; rachis glabrous — 86. *S. longiflora* Andersson.

7. Normal leaves 4—7 cm long, 2—3,5 cm broad, margin denticulate or crenuate rarely entire.

8. Leaves densely silky below and sparingly hairy above; catkins terminal at short branches — 87. *S. pseudowolohoensis* Hao.

8. Leaves glaucous and glabrous beneath except the young ones.

9. Ovary short pedicelled; catkins terminal at branches.

10. Leaves elliptic-oblong, acute at apex, margin crenualate or rarely entire, 4—7 cm long, 2—3,5 cm broad; petioles 5—15 mm long; catkins in fruits to 7 cm long; branches quite glabrous when young — 88. *S. caloneura* Schneider.

10. Leaves ovate rarely elliptic-oblong, margin denticulate or remotely denticulate, 3—5 cm long, 12—35 mm broad; ovary sessile, style with 2 bilobed stigma.

11. Catkins pedunculate, terminal at this year branches, usually with 3—4 normal leaves at the base; leaves elliptic-oblong, margin quite denticulate; style indistinct; capsule ovate; branches pubescent when young — 89. *S. denticulata* Andersson.

11. Catkins subsessile, without normal or small leaves at the base, appearing from last year branches; leaves ovate 2—3,5 cm broad, margin remotely denticulate; style slender about 1,5 mm long; capsule slender including the persistent style 7—8 mm long; branches quite glabrous when young — 90. *S. Wangiana* Hao.

9. Ovary sessile; catkins also sessile or short pedunculate usually axillary not terminal at branches.

10. Leaves elliptic oblong, 3,5—8 cm long, 25 mm broad, acute or short acuminate at apex, rounded or subcordate at base, margin entire, both sides white pilose when young; capsule oblong ovate 3—4 mm long — 91. *S. Delavayana* Handel-Mazzetti.

10. Leaves elliptic lanceolate, glaucous beneath, 1—5 cm long, 6—15 mm broad, both ends obtuse; capsule globose about 5 mm long — 92. *S. cathayana* Diels.

5. Ovary long pedicelled (except 97. *S. Rehderiana*).

6. Catkins espesially the staminate ones very thick often over 10—15 mm in diameter, sessile.

7. Leaves orbicular to rhombic-elliptic-lanceolate, margin serrate, cordate or roundet at base; stipules semihemispherical irregularly glandular-serrate — Sect. 19. *Hastatae.*

8. Leaves orbicular, irregularly serrate, cordate at base, ovate at apex, 5—6 cm long and broad; petioles 10—25 mm long, style slender, hairs on the bracts short; filament about 4 times as long as bract — 93. *S. pirolaefolia* Ledebour.

8. Leaves elliptic-lanceolate, serrate, both ends acute, 4—7 cm long, 2—3,2 cm broad; petioles 4—7 mm long; hairs on the bracts as long as the ovary or as long as the filament; filament 2 times as long as the bract — 94. *S. hastata* Linneaus.

7. Leaves lanceolate acuminate long attenuate glaucous beneath;

catkins with golden pilose; style long with entire elongated stigma — Sect. 20. *Daphnoideae.*

8. Bract elliptic ovate at apex shorter than the ovary — 95. *S. Léveilléana* Schneider.

8. Bract spathulate acute at apex longer than the ovary — 96. *S. daphnoides* Villars.

6. Catkins pedunculate terminal at branches slender and elongated (except 102. *S. myrtilloides*).

7. Catkins elongated up to 4—6 cm long with several normal leaves at the base; leaves lanceolate both ends acute or long acuminate at apex both surfaces glabrous; petioles 6—15 mm long — Sect. 21. *Chingianae.*

8. Ovary sessile, style slender and entire — 97. *S. Rehderiana* Schneider.

8. Ovary long pedicelled.

9. Leaves silky pilose beneath long acuminate; rachis villose — 98. *S. heterochroma* Seemen.

9. Leaves glaucous or light green and glabrous beneath.

10. Margin remotely serrate with yellowish glabrous midrib; capsule linear-lanceolate about 5 mm long — 99. *S. Chingiana* Hao.

10. Margin serrate.

11. Ovary pilose; leaves to 8 cm long, 2,5 cm broad; capsule grayish hairy elliptic oblong — 100. *S. spathulifolia* Seemen.

11. Ovary glabrous; leaves smaller; capsule orbicular — 101. *S. chikungensis* Schneider.

7. Catkins subsessile with small entire leaves at its base; leaves small elliptic glaucous below 5—35 mm long, 3—15 mm broad; ovary and pedicel about equal long; capsule elongated to 10 mm long — Sect. 22. *Myrtilloides* — 102. *S. myrtilloides* Linnaeus.

4. Ovary pilose or tomentose (except 113. *S. praticola*).

5. Catkins sessile quite thick 12—15—17 mm in diameter; bracts with dense long hairs — Sect. 23. *Capreae.*

6. Ovary sessile; filament wholly pilose.

7. Bract retuse at apex; anthers elliptic large about 1 mm long; leaves densely yellow silky; ovary ovoid about 3 mm long; style thick devided into 2 bilobed stigma — 103. *S. spodiophylla* Handel-Mazzetti.

7. Bract ovate at apex.

8. Leaves both sides white tomentose without petioles; branches and petioles also as tomentose as the leaves; style elongated with 2 stigma; capsule white tomentose triangular-orbicular — 104. *S. polia* Schneider.

8. Leaves glabrous above brown pilose below; petioles 3—5 mm long; branches glabrous; style short — 105. *S. obscura* Andersson.

6. Ovary long pedicelled; filament glabrous or only pilose at base.

7. Filaments glabrous free or adnate each other below the middle: leaves linear-lanceolate to 12 cm long, 1—1,5 cm broad, light

green above, whitish green beneath, both surfaces glabrous; petioles 1—1,5 cm long yellowish purple; stipule linear-lanceolate about 15 mm long; ovary as high as the nearly glabrous apex ovate bract — 106. *S. insignis* Andersson.

7. Filaments pilose at base.

8. Bracts toothed at apex obovate-cuneate or spathulate, villous tip toothed densely villous with long hairs; filament slightly longer than the bract; ovary sessile hidden by the bracts; style as long as the capsule — 107. *S. sikkimensis* Andersson.

8. Bracts ovate at apex.

9. Leaves spathulate margin nearly entire much broader above the middle, both surfaces densely tomentose; anthers larger elliptic about 1 mm in diameter; filaments free or growing togather; stigma elongated, style short — 108. *S. cinerea* Linnaeus.

9. Leaves oblong-lanceolate margin irregularly dentate-serrate, papyraceous in texture, 6—14 cm long, 3—6 cm broad, nearly glabrous above, tomentose villose espesially along the nerves beneath, filaments free each other; leaves sometimes variable, orbicular-cordate or quite rounded in form —

109. *S caprea* Linnaeus.

9. Leaves lanceolate, 4—6 cm long, 12—15 mm broad, dark green above, glaucous beneath, cuneate and acuminate; bract 1/4 as long as the filament; without style between the ovary and the 2 small stigma; ovary elongated to 9 mm long —

110. *S. Wallichiana* Andersson.

5. Catkins slender elongated or headlike, not so thick as those species of Sect. Capreae; bracts pilose or pubescent but not long hairy.

6. Leaves obovate-elliptic to oblong-lanceolate, 4—10 cm long, 1—2,5 cm broad, both surfaces tomentose or pilose at least so on the lower side; branches also tomentose; catkins slender elongated up to 7—12 cm long, terminal at branches, with several normal leaves at the base; style elongated with slender stigma; style and stigma about equal in length; ovary sessile pilose or tomentose (except 113. *S. praticola*) — Sect. 24. *Daltonianae.*

7. Bracts retuse at apex, elliptic-oblong; style quite slender, stigma about 2 mm long.

8. Leaves brown tomentose beneath —

111. *S. Daltoniana* Andersson.

8. Leaves white tomentose beneath —

112. *S. salwinensis* Handel-Mazzetti.

7. Bracts ovate at apex, orbicular; stigma about 1 mm long.

8. Ovary glabrous; leaves glandular-serrate, lower surface espesially along the nerves brown tomentose as well as the branches; stigma cylindrical not lobed at apex — 113. *S. praticola* Handel-Mazzetti.

8. Ovary villose; leaves entire or remotely glandular-serrate, lower surface white tomentose; stigma 2-lobed at apex —

114. *S. driophila* Schneider.

6. Leaves linear-lanceolate usually small or glaucous beneath rarely tomentose; catkins headlike or very short only to 4 cm long (except

116. *S. Wuiana* and 115. *S. resecta* Diels); style elongated or short; ovary sessile or pedicelled, pillose or tomentose.

7. Leaves oval to linear; catkins short cylindrical; style short, stigma oblong; ovary sessile — Sect. 25. *Doliae.*

8. Catkins terminal at several leafy branches.

9. Bracts truncate; leaves glabrous and glaucous beneath, elliptic or oblong, obtuse at both ends — 115. *S. resecta* Diels.

9. Bracts orbicular; leaves silky or long hairy beneath.

10. Leaves rhombic-ovate; petioles 5—8 mm long, glabrous above; ovary very short pedicelled — 116. *S. Wuiana* Hao.

10. Leaves lanceolate; petioles 2—4 mm long, both sides silky; bracts broad orbicular, glabrous without and ciliate along the margin — 117. *S. wolohoensis* Schneider.

8. Catkins sessile.

9. Filament wholly pilose, style with 2 bilobed slender stigma; leaves broad-elliptic or elliptic-oblong, 6—8 cm long, 2—3 cm broad — 118. *S. Balfouriana* Schneider.

9. Filament only pilose below the middle or at the base.

10. Style wanting; leaves elliptic, 13—25 mm long, rounded at both ends, margin more or less denticulate, glabrous beneath — 119. *S. inamoena* Handel-Mazzetti.

10. Style slender; leaves spathulate-obovate, 1—1,5 cm long, lower surface hairy or silky.

11. Branches black striated; catkins 4 cm long — 97. *S. Rehderiana* var. *brevisericea* Schneider.

11. Branches reddish glabrous smooth; catkins 1—2 cm long — 120. *S. dolia* Schneider.

7. Although the leaves linear-lanceolate but the catkins headlike only 5—20 mm in length rarely longer (in 129. *S. opaca* Andersson to 3,5 cm long) — Sect. 26. *Viminales.*

8. Ovary sessile.

9. Leaves elliptic-oblong or elliptic-lanceolate, margin entire revolute, 15—25 mm long, 4—6 mm broad; catkins sessile with dense golden hairs; young leaves also with golden dense hairs when appearing from the buds — 121. *S. flavicans* Hao.

9. Leaves linear-lanceolate, much more longer; 4—8—(15) cm long.

10. Ovary with a long style, this style about 2 times as long as the ovary; leaves linear entire to 15 cm long, 8 mm broad, lustrously silky below, staminate catkins 1,5—2 cm long (see also 122. *S. Schwerinii* Wolf) — 123. *S. viminalis* Linnaeus.

10. Style short; leaves glabrous beneath, margin remotely glandular, spathulate-lanceolate, usually broader above the middle; catkins headlike — 124. *S. lamashanensis* Hao.

8. Ovary long pedicelled.

9. Leaves silvery dense hairy below.

10. Bracts orbicular, somewhat longer than the pedicel; leaves linear-lanceolate; staminate ventral gland about 1/2 as long as the bract — 125. *S. subopposita* Miquel.

10. Bracts elliptic, somewhat shorter than the pedicel; leaves variable

linear to ovate-elliptic, normal leaves usually coriaceous above — 126. *S. repens* Linnaeus.

9. Leaves not silvery densely hairy below.

10. Bracts about 1/2 as long as the pedicel or much shorter than the pedicel; leaves elliptic-ovate; stipules reniform, irregularly dentate; filament pilose at base — 127. *S. Starkeana* Willdenow.

10. Bracts usually longer than the pedicel; filament wholly glabrous; leaves narrow lanceolate to lanceolate.

11. Bracts acute at apex; catkins headlike; ovary glabrous or nearly so, the hairs on the bract as long as filament; ventral gland 2/3 as long as the pedicel; bract 1/2 as high as the ovary — 128. *S. rorida* Lackschewitz.

11. Bract ovate at apex; catkins 15—35 mm long.

12. Leaves both sides glabrous, glaucous beneath, 8—15 cm long, margin crenate or serrulate.

13. Ventral gland as long as the pedicel; bract as long as the ovary; ventral gland of staminate flower well developed about 2/3 as long as the bract; stigma 2-lobed — 129. *S. opaca* Andersson.

13. Ventral gland 1/2 as long as the pedicel; bract as long as the pedicel, much shorter than the ovary; staminate ventral gland also developed as that in *S. opaca* — 130. *S. siuzevi* Seemen.

12. Leaves pilose below, 4—6 cm long, margin entire; staminate ventral gland 1/5 as long as the bract; filament glabrous 5—6 times as long as bract; bract 1/2 as long as the ovary — 131. *S. sibirica* Pallas.

1. Stamen only one in a flower, or 2 filaments growing wholly or partly togather; flower only ventral gland present, without dorsal gland; ovary and pedicels (if present) pilose (in 134. *S. microstachya* and 150. *S. pycnostachya*, the ovary glabrous).

2. Leaves linear, 3—12 cm long, 2—5 mm broad; catkins cylindrical but short only to 1—1,5 cm long; filaments short, with 1—5 small entire leaves at the base, ovary sessile pilose without distinct style — Sect. 27. *Cheilophilae*.

3. Leaves and branches quite glabrous although when young; these leaves on the fruiting branches 6—12 cm long.

4. Stipules absent — 132. *S. shansiensis* Hao.

4. Stipules linear-lanceolate about 13 mm long, margin serrate — 133. *S. linearistipularis* Hao.

3. Leaves and branches tomentose or pubescent, at least so when young; leaves of fruiting branche 1,5—5 cm long.

4. Ovary glabrous; cylindrical ventral gland of staminate flower about 1/2 as long as bract — 134. *S. microstachya* Turczaninow.

4. Ovary pilose; ventral gland 1/5—1/3 as long as the bract.

5. Leaves both sides densely white tomentose; branches also white tomentose — 135. *S. Wilhelmsiana* Marschal v.

5. Leaves only lower side tomentose, pilose or silvery hairy.

6. Branbhes nearly glabrous; staminate bract truncate at apex, glabrous within; pistillate bract ovate both sides glabrous — 136. *S. angustifolia* Willdenow.

6. Branches pubescent; staminate bract elliptic-oblong, long hairy within, filament slightly longer than the bract or as long as the bract; pistillate bracts orbicular 1/2—2/3 as long as the ovary — 137. *S. cheilophila* Schneider.

2. Leaves lanceolate, ovate, elliptic-oblong to spathulate, not linear.

3. Style as long as ovary; hairs on the bracts very dense, nearly as long as the stamens — Sect. 28. *Gracilstylae.*

4. Stamens glabrous; bracts acuminate; cylindrical gland 2/3 as long as the staminate bract; pistillate bract acute as long as ovary; style slightly longer than the ovary — 138. *gracilistyla* Miquel.

4. Stamens pilose at base or below the middle; ventral gland 1/4 as long as bract; bracts ovate to elliptic not acute or acuminate at apex; style about as long as ovary — 139. *S. myrtillacea* Andersson.

3. Style much shorter than the ovary; hairs along the bract much shorter than the filaments.

4. Leaves ovate, obovate-oblong or elliptic, entire or crenate, glaucous beneath or sericeous and silky although during maturity; catkins having 2—4 normal leaves at base, terminal at short branches, flowers and leaves appearing at the same time; filaments sometimes partly free — Sect. 29. *Sieboldianae.*

5. Pistillate bract oblong, as long as the ovary (including style); leaves beneath and petioles silky — 140. *S. hupehensis* Hao.

5. Pistillate bract ovate or orbicular, 1/3—1/2 as long as ovary.

6. Leaves entire glabrous quite glaucous beneath — 141. *S. dibapha* Schneider.

6. Leaves remotely glandular-serrate, green sparingly villose above, densely pilose beneath — 142. *S. hylonoma* Schneider.

4. Leaves lanceolate, spathulate to oblong, margin entire or serrate; catkins without normal leaves at the base, or the leaves at peduncle very small more stipule-like only several mm in length.

5. Leaves elliptic-ovate to oblanceolate, obtuse or acute at apex, discolored, nerves reticulate, margin entire; catkins short, cylindrical densely flowered, 8—12—(20) mm long — Sect. 30. *Caesiae.*

6. Branches pubescent; leaves lanceolate with pubescent below — 143. *S. pubescens* Hao.

6. Branches glabrous; leaves ovate glabrous on both sides, or slightly hairy below when young (as in 147. *S. myricaefolia* Andersson).

7. Bracts acute at apex; leaves (on the sterile branches) sessile cordate or roundet at base (see also 157. *S. multinervis*), 3,5—6,5 cm long, 2—2,5 cm broad; those leaves of the fruiting branches elliptic-spathulate mostly 1—1,8 cm long; staminate bract linear-lanceolate 1/2 as long as filaments; filaments pilose below the middle; young branches green or yellowish green — 144. *S. Kochiana* Trauttvetter.

7. Bracts ovate at apex; leaves (on sterile branches) attenuate at base 12—18 mm long; leaves of fruiting branches elliptic or ovate-spathulate much similar to those of 144. *S. Kochiana.*
8. Filaments free at upper part; bracts nearly as long as filaments; stamens pilose at base; leaves glabrous on both sides, more or less acute at apex (see also 145. *S. Limprichtii* Pax) — 146. *S. caesia* Villars.
8. Filaments growing togather; bract 1/2 as long as filaments; stamens glabrous; leaves hairy below, obtuse at apex — 147. *S. myricaefolia* Andersson.

5. Leaves lanceolate, rarely elliptic or oblanceolate, serrate-denticulate; filaments adnate sometimes the anthers also adnate each other.
6. Leaves small, obovate, spathulate or oblong, 5—20 mm long rarely to 4,5 cm as in 149. *S. Schneideriana* Hao, margin revolute glandular-denticulate — Sect. 31. *Variegatae.*
7. Bracts acute at apex; anthers bearing some hairs at end of each conective when young; leaves very small only 5—9 mm long, 3—4 mm broad, ovate to obovate, margin entire or nearly so; ovary with 4 developed stigma — 148. *S. andropogon* Léveillé.
7. Bracts ovate at apex; anthers glabrous; leaves spathulate to oblong; ovary with indistinct stigma.
8. Ventral glands (on male specimens) 1/2 as long as bract; leaves oblong about 4,5 cm in length — 149. *S. Schneideriana* Hao.
8. Ventral glands 1/3 as long as bract, leaves spathulate, 1,8 cm long, 5 mm broad — 150. *S. variegata* Franchet.

6. Leaves larger 5—16 cm long, lanceolate or narrow-lanceolate — Sect. 32. *Helix.*
7. Bracts elliptic; the pistillate bract about as long as the ovary (in 152. *S. oxycarpa*, the bract much smaller); petioles 5—15 mm long.
8. Ovary short-pedicelled; staminate ventral gland about 1/3 as long as bract; filaments glabrous — 151. *S. lepidostachys* Seemen.
8. Ovary sessile.
9. Ovary without distinct style and with 2 stigma; ventral glands small about 1/5 as long as bract.
10. Leaves green beneath, both sides pubescent, 5—7 cm long, 7—12 mm broad; ovary elongated; capsule linear-oblong, about 6 mm long; filaments quite glabrous; petioles 5 mm long; bract much reduced circa 1/6 as long as the ovary — 152. *S. oxycarpa* Andersson.
10. Leaves glaucous beneath, both sides glabrous, 12—16 cm long, 2—3 cm broad; ovary ovate-elliptic not linear-oblong; filaments slightly pilose at the base; petioles 10—15 mm long; bract elliptic about as long as the ovary (see also 153. *S. Baileyi* Schneider) — 154. *S. Miyabeana* Seemen.
9. Ovary with a slender style; stigma 2, each one 2-lobed; ventral gland of male flower 1/2 as long as bracts; leaves whitish or glaucous beneath — 155. *S. Pierotii* Miquel.
7. Bracts orbicular.
8. Ovary glabrous; filaments also glabrous; leaves lanceolate, broader in the middle — 156. *S. pycnostachya* Andersson.

8. Ovary pilose; filaments pilose below or at the base.
9. Leaves cordate at base — 157. *S. multinervis* Franchet.
9. Leaves attenuate into a short petiol —
158. *S. purpurea* Linnaeus.

Key based on staminate specimens.

1. Stamens 3 or more than 3; flowers with 2 glands, one dorsal and one ventral that is to say, the ventral one for the gland between rachis and flower, the dorsal one for the gland between flower and bract (*Pleiandrae*).
2. Filament 1/2 as long as bract; leaves, petioles, branches and bracts all white tomentose; glands forming a disk surroundig the base of filaments; bracts subtruncate at apex, blackish, nearly glabrous without, covering the filaments — 3. *S. angiolepis* Léveillé.
2. Filaments 2 to 5 times as long as bracts; leaves, petioles and branches glabrous or nearly so (in 12. *S. dodecandra* Léveillé, the leaves yellowish silky below).
3. Catkins loosely flowered; internode between the flowers distinctly to be seen by the naked eye; flower with separated glands, these glands not forming into a pseudodisk; leaves narrow-attenuate at base, glaucous or whitish beneath at least so during the flowering time.
4. Filaments glabrous; leaves at catkin-peduncle almost entire (in 6. *S. Rosthornii*, linear and long hairy below) —
7. *S. Dunnii* Schneider.
4. Filaments pilose below the middle or at the base.
5. with 2—3 normal leaves at the peduncle; petioles without glands at apex; leaves thin in texture — 4. *S. Wilsoni* Seemen.
5. Leaves at peduncle linear, long hairy below; petioles glandular at apex; stipules reniform; mature leaves (on fruiting branches) light green beneath — 6. *S. Rosthornii* Seemen.
3. Catkins densely flowered; the internode between the flowers nearly wholly covered by the bracts and filaments.
4. Catkins elongated, slender, cylindrical, up to 8—10 cm long; bracts both sides densely white tomentose; flowers subverticillate.
5. Stamens 5—6, as long or 2 times as long as bracts —
10. *S. araeostachya* Schneider.
5. Stamens 8—9, 3 times as long as bracts.
6. Petioles short, 5—10 mm long; leaves lanceolate, sparingly hairy above, silvery hairy beneath, 4—8 cm long, acute at apex —
9. *S. pyrina* Wallich.
6. Petioles 10—15 mm long; leaves 6—16 cm long, linear-lanceolate, green glabrous above, sparingly hairy beneath, long acuminate at apex; bracts truncate or rounded at apex —
8. *S. tetrasperma* Roxburgh.
4. Catkins much shorter, elongated only to 7 cm long; bracts outside glabrous or slightly pilose, not tomentose.
5. Stamens only 3, rarely more.

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6. Leaves on the peduncle entire; bracts outside glabrous on the upper part — 1. *S. nipponica* Franchet.
6. Leaves on the peduncle serrate; bracts outside pubescent — 2. *S. triandra* Linn.

5. Stamens more than 3.
6. Petioles 2—5 mm long; leaves linear-lanceolate.
7. Bracts membranaceous; petioles and middle nerve of the leaf usually yellow (pistillate bracts slightly longer than the ovary) — 11. *S. macrolepis* Turcz.
7. Bracts not membranaceous; petioles and middle nerve blackish.
8. Bracts acuminate at apex; leaves at peduncle not silky beneath; catkins with stamens variable in number, the lower flower having 5—7 stamens, the upper flower, near the apex of catkins, having 2—3 stamens — 13. *S. cantoniensis* Hance.
8. Bracts ovate at apex; leaves at peduncle yellowish silky beneath; stamens numerous, 5—12 — 12. *S. dodecandra* Léveillé.
6. Petioles 7—15 mm long; leaves ovate lanceolate.
7. Leaves light green beneath.
8. Filaments glabrous, strong and straight (capsule ovate-globose) — 15. *S. Cavaleriei* Léveillé.
8. Filaments pilose below the middle or at base, reflexed (capsule linear oblong, acute at apex).
9. Catkins 2—4 cm long (style distinct) — 18. *S. pentandra* Linnaeus.
9. Catkins 4—6 cm long (stigma sessile, without distinct style) — 19. *S. paraplesia* Schneider.
7. Leaves glaucous beneath; petioles glandular at apex; stamens 5 — 16. *S. glandulosa* Seemen.

1. Stamens 2, with free filaments (Biandrae).
2. Male flower bearing 2 glands, one ventral and one dorsal.
3. Filaments quite glabrous.
4. Leaves elliptic-oblong, maximus, 6—15 cm long; catkins elongated slender 6—12 cm long.
5. Leaves entire elliptic or obovate, the largest ones to 22,5 cm long; glands more or less adnate; filaments about 4 mm long — 42. *S. magnifica* Hemsley.
5. Leaves serrate or glandular-serrulate, much smaller; glands separated; filaments only 2,5 mm long — 43. *S. moupinensis* Franchet.
4. Leaves small, 3—50 mm long; catkins headlike or only to 3,5 cm long, never longer.
5. Leaves margin inciso-serrate, these serratae well distinct triangular.
6. Catkins headlike, bracts with long and dense hairs; the teeth along the margin regularly serrate about 2 mm in length — 40. *S. berberifolia* Pallas.
6. Catkins oblong, about 1,5 cm long; bracts more glabrous, without long hairs; the teeth irregular smaller — 41. *S. Brayi* Ledebour.
5. Leaves entire or crenulate (in 21. *S. oreophila* Hooker serrate).

6. Catkins about 3,5 cm long; leaves linear-lanceolate both ends acuminate, 2—3,5 cm long, 4—6 mm broad; erect shrub up to 3 m tall — 68. *S. sericocarpa* Andersson.

6. Catkins headlike or elongated only to 2 cm long.

7. Margin entire.

8. Leaves elliptic coriaceous, 3,5—6 mm long, 1,5—2,5 mm broad; bracts spathulate nearly as long as filaments — 29. *S. ovatomicrophylla* Hao.

8. Leaves oblong to oval, about 8 mm long; bracts elliptic shorter than the filaments — 28. *S. Souliei* Seemen.

7. Margin crenulate or lobed towards apex.

8. Leaves acute, margin deeply serrate, 6—8 mm long, 3—4 mm broad; Catkins 2—5—flowered; glands nearly 1/2 as long as bracts — 21. *S. oreophila* Hooker.

8. Leaves ovate rounded at apex.

9. Petioles 1/8 as long as the leaves; leaves ovate-spathulate crenate-denticulate, 15—20 mm long.

10. Ovary sessile — 32. *S. oreinoma* Schneider.

10. Ovary pedicelled — 33. *S. flabellaris* Andersson.

9. Petioles very short; leaves 3—7 mm long.

10. Margin crenate; filaments unequal in length — 22. *S. crenata* Hao.

10. Margin 3—5 lobed at apex; filaments equal in length — 20. *S. secta* Hooker f.

3. Filament wholly pilose or hairy below the middle.

4. Prostrate shrubs; leaves small, 3—12 mm long, 2—7 mm broad; catkins terminal at branches.

5. Leaves spathulate, 5—12 mm long, to 4 mm broad; petioles glabrous yellowish brown, 5—7 mm long — 25. *S. Lindleyana* Wallich.

5. Leaves elliptic or ovate-orbicular rarely elliptic-lanceolate; petioles 1—4 mm long.

6. Branches hirsute-velutinaeus; bracts truncate at apex — 23. *S. hirticaulis* Handel-Mazzetti.

6. Branches glabrous.

7. Leaves petiolate obtuse at apex 4—9 mm long, 1,5—5 mm broad, margin slightly denticulate towards apex rarely entire — 26. *S. brachista* Schneider.

7. Leaves subsessile acute at apex 2,5—3,5 mm long, 1,5—2 mm broad, margin entire not denticulate — 30. *S. acuminatomicrophylla* Hao.

4. Erect shrubs or trees; leaves larger.

5. Catkins terminal at branches, with several normal leaves at the peduncle; petioles 1—2 cm long; leaves tomentose or densely hairy and silky, at least so on the lower sides, margin crenate or remotely serrate.

6. Filaments nearly wholly pilose.

7. Bracts truncate and incised at apex, 2/3 as long as the filaments; leaves 4—8 cm long, 1,2—2,5 cm broad, margin remotely serrate, glands cylindrical — 59. *S. bistyla* Handel-Mazzetti.

7. Bracts rounded at apex, 1/3 to 1/2 as long as the filament; glands often incised or lobed at apex.
8. Bracts broad—ovate rounded with 2—3 glands at apex; leaves 6—11 cm long, 3,5—4 cm broad, the larger ones to 15—22 cm long, and 5,5 cm broad, acuminate, rounded at base; stipules semicordate, glandular-dentate — 58. *S. phanera* Schneider.
8. Bracts oblong, ovate at apex; leaves 3—7 cm long, 1,2—2 cm broad; stipules small or wanting — 61. *S. phaidima* Schneider.

6. Filament only pilose below the middle or at the base.
7. Bracts orbicular, 1/3 as long as filaments — 62. *S. plocotricha* Schneider.
7. Bracts elliptic to oblong, 1/2 as long as the filaments — 60. *S. Ernesti* Schneider.

5. Catkins producing from the axils of last year leaves (except 39. *S. floccosa* and 38. *S. coggygria*), slender, sessile, densely flowered, rarely with small leaves at the peduncle; leaves glabrous, lower sides glaucous or hairy, margin entire or serrate; petioles short.
6. Leaves ovate-spathulate or obovate, margin crenate-denticulate, both sides glabrous or sparingly hairy when young, 1—4 cm long, 6—35 mm broad, ovate at apex; petioles 1/3 as long as the leaves; catkins terminal at short branches.
7. Bracts truncate at apex, both sides villose; glands cylindrical, about 1/2 as long as bracts; leaves suborbicular-obovate, 1,5—4,5 cm broad, rounded or obtuse at apex — 38. *S. coggygria* Handel-Mazzetti.
7. Bracts ovate at apex; glands rectangular, 1/5 as long as bracts; leaves obovate-spathulate, 2—4 cm long, 1,5—2 cm broad — 39. *S. floccosa* Burkill.

6. Leaves lanceolate, margin entire or serrate; petioles short or wanting.
7. Catkins short 8—20 mm long.
8. Bracts retuse at apex; shrubs.
9. Bracts broad ovate, retuse at apex, 1/6 as long as filaments; glands more or less lobed at apex — 64. *S. sclerophylla* Andersson.
9. Bracts truncate or retuse at apex, spathulate; 1/2 as long as filaments; glands 2—3—parted, or the ventral and the dorsal forming into a 4—parted pseudodisk, 1/3 as long as the bracts — 65. *S. atopantha* Schneider.
8. Bracts acute at apex; trees.
9. Branches slender very pendulous — 56. *S. babylonica* Linnaeus.
9. Branches also slender, but more spreading — 57. *S. Matsudana* Koidzumi.
7. Catkins 4—7 cm long, sessile, densely flowered.
8. Mature leaves serrate, silky or hairy or tomentose below.
9. Glands 4; bracts obovate-spathulate, glabrous without; leaves elliptic 10—40 mm long, both ends obtuse or rounded, margin revolute denticulate, glabrous or sparingly pilose above, silky or glaucous-pruinose beneath — 53. *S. tetradenia* Handel-Mazzetti.

9. Glands 2; these glands similar to each other more or less lobed at apex; leaves lanceolate white dense tomentose beneath; buds slightly longer than the petioles; bracts broad-orbicular, densely long white villose without —
67. *S. psilostigma* Andersson.

9. Glands 2, but these glands cylindrical.

10. Bracts retuse at apex; leaves serrate, narrow lanceolate to 8,5 cm long, 2 cm broad, both ends acute, darkgreen somewhat lustrous above, glaucous more or less hairy beneath; catkins about 4 cm long, 6 mm thick (see also 55. *S. dolichostyla* Seemen) — 69. *S. jessoensis* Seemen.

10. Bracts ovate at apex; leaves ovate-oblong, subacuminate at apex, cuneate or rounded at base, 3—5 cm long, 1—1,5 cm broad, scarcely hairy above, densely villose beneath, margin entire or slightly glandular-serrate; catkins about 6 cm long — 54. *S. Guebrianthiana* Schneider.

8. Mature leaves entire, both sides glabrous or nearly so.

9. Bracts glabrous on both sides.

10. (Ovary with 2 glands at the base); bracts 2/3 as long as filaments — 52. *S. tenella* Schneider.

10. (Ovary with one ventral gland); bracts about 1/3 as long as filaments — 86. *S. longiflora* Wallich.

9. Bracts long hairy, these hairs nearly as long as filaments —
66. *S. erioclada* Léveillé.

2. Male flower bearing only one ventral gland, dorsal gland wanting (in 77. *S. dissa* and 118. *S. Balfouriana*, the dorsal gland present).

3. Filaments pilose below the middle.

4. Catkins sessile quite thick 12—15—17 mm in diameter; bracts with dense long hairs.

5. Bracts obovate-cuneate villose, tip toothed, 2/3 as long as filaments; filaments 2, more or less adnate and pilose at base; leaves ovate-lanceolate obtuse quite entire glabrouse above densely silky and coppery beneath; staminate catkins about 3 cm long, stout —
107. *S. sikkimensis* Andersson.

5. Bracts ovate at apex (in 103. *S. spodiophylla* Handel-Mazzetti; bract retuse at apex).

6. Anthers orbicular, about 1 mm across; bracts elliptic-oblong.

7. Leaves lanceolate, margin entire, 4—6 cm long, 12—15 mm broad, dark green above, glaucous beneath, cuneate and acuminate; filaments about 10 mm long, pilose at base; bracts 1/4 as long as filaments — 110. *S. Wallichiana* Andersson.

7. Leaves ovate-oblong to obovate, margin serrate or crenulate, acute or obtuse at apex, 5—10 cm long, 2—4,5 cm broad, abruptly broader above the middle; filaments about 8 mm long; bracts 1/2 as long as filaments — 108. *S. cinerea* Linnaeus.

6. Anthers oblong, under 1 mm in diameter.

7. Bracts orbicular retuse at apex, 1/4 as long as filaments; filaments pilose from base to apex; leaves obovate to obovate-lanceolate, 18—73 mm long, 12—25 mm broad, margin entire —
103. *S. spodiophylla* Handel-Mazzetti.

7. Bracts elliptic-oblong, ovate at apex, 1/2 as long as filaments; filaments only pilose at base; leaves oblong-lanceolate, 6—14 cm long, 3—6 cm broad, papyraceous in texture, margin irregularly dentate-serrate — 109. *S. caprea* Linnaeus.

4. Catkins terminal at branches, or sessile but not so thick, only 3—6 rarely 9 mm across.

5. Catkins slender loosely flowered, 2—4,5 cm long, 3—4 mm thick, terminal at short branches, distinctly pedunculate; leaves ovate-oblong, margin entire, both ends obtuse or acute, dark green glabrous above, light green or glaucous beneath; bract glabrous on both sides (except 80. *S. mictotricha* Sbhneider).

6. Male flower bearing 2 glands; catkins 4—5 cm long, 3—4 mm thick, with 2—4 small entire leaves at the peduncle; leaves glabrous, 1—1,5 cm long, 5—6 mm broad — 77. *S. dissa* Schneider.

6. Male flower bearing only one ventral gland.

7. Ventral gland 1/2 as long as bract.

8. Hairs along and on the bracts reddish brown in colour — 80. *S. mictotricha* Schneider.

8. Bracts glabrous — 85. *S. rhoophila* Schneider.

7. Ventral gland 1/4 or 1/5 as long as bract.

8. Leaves glaucous beneath, both sides glabrous blackish when dry — 81. *S. hypoleuca* Seemen.

8. Leaves light green beneath, lower surface pubescent along the middle nerve — 82. *S. Tangii* Hao.

5. Catkins headlike or only to 30 mm long (except 92. *S. cathayana)* appearing before the leaves.

6. Catkins 7— 20 mm long (ovary pilose).

7. Bracts orbicular.

8. Dwarf erect shrub up to 40 cm tall; leaves elliptic-ovate to oblong, about 1,3 cm long, 4—6 mm broad, margin entire, lower surface slightly pubescent not glabrous — 27. *S. clathrata* Handel-Mazzetti.

8. Shrub to 2 m tall with stout branches; buds ovoid about 4 mm long; leaves elliptic, 13—25 mm long, rounded at both ends, margin more or less denticulate, lustrously green above, lower surface glaucous or densely whitish pilose when young — 119. *S. inamoena* Handel-Mazzetti.

7. Bracts elliptic-oblong, 1/2 as long as filaments.

8. Leaves glabrous and glaucous beneath; bracts glabrous without, ciliate along the margin, brown in colour — 127. *S. Starkeana* Willdenow.

8. Leaves more or less hairy; bracts densely hairy without — 120. *S. dolia* Schneider.

6. Catkins longer than 2 cm (ovary glabrous see also 27. *S. clathrata)*.

7. Bracts glabrous; leaves ovate-oblong to oblanceolate, dark green and along the nerves pilose above, glaucous or white pilose beneath, margin irregularly glandular-crenuate, 5—11,5 cm long, 1,2—2,5 cm broad; petioles 2—8 mm long; catkins with 2—3 lanceolate and entire leaves at the pednncle — 97. *S. Rehderiana* Schneider.

7. Bracts hairy.
8. Filaments 2/3 pilose; bracts orbicular 1/3 as long as stamens — 84. *S. luctousa* Léveillé.
8. Filaments 1/4 pilose below; bracts orbicular 1/2 as long as stamens — 92. *S. cathayana* Diels.

5. Catkins terminal at branches, neither so slender nor headlike.
6. Leaves ovate to elliptic-oblong, obtuse or acute at apex, lower sides glabrous or glaucous, margin crenulate or denticulate, rarely entire.
7. Leaves entire.
8. Leaves elliptic-oblong, 3,5—8 cm long, 2,5—3 cm broad, acute or obtuse at apex, rounded or subcordate at base, lower sides glabrous or white pilose when young; catkins 2—5 cm long, 4—7 mm thick; glands 1/3 as long as stamens, filaments 4—5 mm long — 91. *S. Delavayana* Handel-Mazzetti.
8. Leaves oblong to obovate, attenuate at base, more or less rounded at apex, to 3 cm long, 1,7 cm broad, glabrous dark green above, light green beneath; catkins to 1,5 cm long, filaments about 2,5 mm long — 74. *S. Biondiana* Seemen.
7. Leaves serrate crenulate denticulate never entire.
8. Filaments wholly pilose; bracts 1/3 as long as filament, subtruncate at apex; leaves spathulately broad-ovate, 3—4 cm long, 2,5—3,5 cm broad, dark green and glabrous above, white glaucous beneath, here and there sparingly long hairy, margin crenuate denticulate; petioles 6—15 mm long, about 1/3 as long as the leaves — 36. *S. annulifera* Marquand.
8. Filaments pilose only below the middle or at base.
9. Shrub 10—30 cm tall (35. *S. microphyta* Franchet) — 37. *S. Faxoniana* Schneider.
9. Small tree — 89. *S. denticulata* Andersson.

6. Leaves obovate-elliptic to oblong-lanceolate, 4—10 cm long, 1—2,5 cm broad, both surfaces tomentose or pilose at least so on the lower side; young branches tomentose; catkins elongated to 3—7—12 cm long, terminal at branches.
7. Lower side of the leaves brown tomentose — 111. *S. Daltoniana* Andersson.
7. Lower side not brown tomentose.
8. Filaments wholly pilose; bracts obovate-elliptic, 1/2 as long as filaments; catkins 3 cm long.
9. Leaves elliptic-oblong, 6—8 cm long, 2—3 cm broad, rounded or cordate at base — 118. *S. Balfouriana* Schneider.
9. Leaves lanceolate, about 10 cm long, 1,2—2 cm broad, attenuate at base — 112. *S. salwinensis* Handel-Mazzetti.
8. Filaments only at base more or less pilose or glabrous; bracts broad-ovate or orbicular; catkins 6—10 cm long.
9. Leaves margin entire, near and along the nerves silky below — 114. *S. driophila* Schneider.
9. Leaves margin serrate, lower side wholly densely silvery hairy — 45. *S. Fargesii* Burkill.

3. Filaments glabrous.
4. Margin (of normal leaves) serrate or irregularly dentate, lower side glabrous (in 75. *S. characta* pubescent when young).
5. Leaves ovate to obovate or elliptic-oblong; margin unequally incised-serrate these teeth quite distinct triangular; filaments glabrous; catkins sessile, 2,5—5 cm long, 10—15 mm thick; petioles about 1/3 as long as the leaves; stipules well developed semihemispherical and dentate along the margin.
6. Hairs on the bracts as long as filaments; leaves elliptic-lanceolate, green glabrous above, white green beneath, cordate or rounded at base, 4—7 cm long, 2,5—4 cm broad —
94. *S. hastata* Linnaeus.
6. Hairs on the bracts very short about 1/3 as long as filaments; leaves orbicular, dark green and lustrous above, glaucous beneath, oblique cordate at base, 6 cm long, 5 cm broad —
93. *S. pirolaefolia* Ledebour.
5. Leaves lanceolate glabrous glaucous beneath, margin serrate or dentate.
6. Catkins oblong-cylindrical 1,5—2 cm long, 5—7 mm thick.
7. Ventral gland slightly shorter than the bracts; bracts lanceolate acute at apex — 130. *S. Suizevii* Seemen.
7. Ventral gland very small; bract orbicular rounded at apex —
75. *S. characta* Schneider.
6. Catkins quite thick, 12—15—18 mm across; bracts acute at apex with dense long hairs.
7. Catkins headlike 18 mm long and thick; stipule orbicular about 1/2 as long as the yellowish glabrous petioles; bracts 2-lobed at apex; stamens about 8,5 mm long with yellow and ovate anthers — 128. *S. rorida* Lackschewitz.
7. Catkins ovate-oblong.
8. Normal leaves 10—15 cm long, glaucous beneath long acuminate.
9. Stipules linear as long as the petioles; petioles 10—15 mm long; hairs on the bracts dense and long about as long as filament — 106. *S. insignis* Andersson.
9. Stipules orbicular much shorter than the petioles; hairs on the bracts much shorter — 129. *S. opaca* Andersson.
8. Normal leaves 3—6 cm long (rarely to 10 cm) 6—12 mm broad, narrow attenuate at base; catkins 3—4 cm long, 15 mm thick; bracts triangular with densely yellow cotton —
96. *S. daphnoides* Villars.

4. Margin entire.
5. Leaves ovate to elliptic 1—5 cm long 15—25 mm broad, glaucous beneath, both ends obtuse.
6. Ventral gland 1/2 as long as bracts (ovary glabrous long pedicelled) — 102. *S. myrtilloides* Linnaeus.
6. Ventral gland 1/5 as long as bracts (ovary pilose subsessile) —
72. *S. phylicifolia* Linnaeus.
5. Leaves linear rarely lanceolate with silvery hairs or silky below, neither glaucous nor glabrous (ovary pilose); catkins headlike.

6. Hairs of catkins finely yellow; leaves 1,5—2,5 cm long, 4—6 mm broad, elliptic-lanceolate to lanceolate with silvery hairs beneath — 121. *S. flavicans* Hao.

6. Hairs of catkins not yellow.

7. Bracts orbicular 1/6 to 1/4 as long as filaments.

8. Ventral gland 1/2 as long as bracts; bracts densely tomentose; leaves only 6—7 mm broad — 125. *S. subopposita* Miquel.

8. Ventral gland 1/5 as long as bracts; bracts glabrous or slightly pubescent; leaves 15—27 mm broad — 131. *S. sibirica* Pallas.

7. Bracts 1/2 to 1/3 as long as filaments.

8. Bracts acute at apex; (ovary sessile, style slender longer than the ovary) — 123. *S. viminalis* Linnaeus.

8. Bracts ovate at apex (ovary long pedicelled with short style) — 126. *S. repens* Linnaeus.

1. Stamens only one, or 2 filaments growing wholly or partly togather, without dorsal gland, only ventral gland present (Synandrae).

2. Leaves linear 3—12 cm long, 2—5 mm broad; catkins 1—1,5 cm long rarely longer; filaments short.

3. Bracts nearly as long as filaments; leaves more or less serrate along the margin pilose or slightly white silky below; with 4—5 normal leaves at the catkinsbase — 137. *S. cheilophila* Schneider.

3. Bracts 1/2 as long as filaments.

4. Bracts truncate; stamens glabrous; leaves both sides glabrous — 136. *S. angustifolia* Willdenow.

4. Bracts ovate at apex; filaments pilose at base.

5. Ventral gland 1/2 as long as bract, young branches and leaves below glabrous (ovary glabrous) — 134. *S. microstachya* Turczaninow.

5. Ventral gland 1/4 as long as bracts, young branches and leaves both surfaces densely white tomentose (ovary tomentose) — 135. *S. Wilhelmsiana* Marschal.

2. Leaves not linear much longer and broader; catkins also longer than 1,5 cm (except 147. *S. myricaefolia*, 146. *S. caesia*, 150. *S. variegata* and 148. *S. andropogon*).

3. Catkins 2,5—4 cm long, (0,5)—1,2 cm thick; bracts with dense long hairs, these hairs nearly reaching the anthers.

4. Leaves obtuse at apex.

5. Bracts acuminate, hairs along the margin as long as stamens; ventral gland 2/3 as long as bracts; leaves serrate spathulate-lanceolate, both sides pubescent, 4—7 cm long, 1,5—2 cm broad — 138. *S. gracilistyla* Miquel.

5. Bracts ovate at apex, hairs along the margin shorter, ventral gland not so distinct; leaves entire, elliptic-oblong, both sides glabrous, 1,5—2 cm long, 7—10 mm broad — 139. *S. myrtillacea* Andersson.

4. Leaves acuminate at apex.

5. Ventral gland 1/2 as long as bract; leaves quite glaucous below (ovary with distinct style) — 155. *S. Pierotii* Miquel.

5. Ventral gland rudimentary or only 1/5—1/3 as long as bract; petioles 1—1,5 cm long.
6. Filament slightly pilose at base (ovary sessile) — 154. *S. Miyabeana* Seemen
6. Filament glabrous (ovary short pedicelled) — 151. *S. lepidostachys* Seemen.

3. Catkins short (if longer often slender) 3—6 mm thick; bracts short hairy or pubescent.
4. Leaves of flowering branches sessile, margin entire, without distinct petioles, 5—15 mm long (except young branches of which the leaves are much longer and sometimes margin serrate as in 157. *S. multinervis* Franchet).
5. Anthers bearing some hairs at end of each conective when young — 148. *S. andropogon* Léveillé.
5. Anthers without hairs.
6. Catkins under 10 mm in length; bracts elliptic-oblong, leaves ovate-elliptic attenuate at base thick in texture more or less pubescent during the appearing time.
7. Filaments glabrous wholly growing togather — 147. *S. myricaefolia* Andersson.
7. Filaments pilose at base, the 2 filaments not wholly growing togather but more or less separated at apex — 146. *S. caesia* Villars.
6. Catkins about 17 mm long; bracts orbicular; leaves oblong cordate at base thin in texture glabrous although when young — 157. *S. multinervis* Franchet.
4. Leaves of flowering branches short petioled, margin serrate or glandular-denticulate rarely entire (as in 144. *S. Kochiana*).
5. Ventral gland about 1/2 as long as bract.
6. Catkins 7—15 mm long; leaves lanceolate or spathulate oblong, margin revolute glandular-denticulate, 10—15 mm long, 4—5 mm broad, glaucous sparingly hairy beneath — 150. *S. variegata* Franchet.
6. Catkins 2,5—3 cm long; leaves 3—5 cm long.
7. Leaves 2,5—5,5 cm long, 1,5—2,3 cm broad, ovate to ovate-lanceolate or obovate-elliptic, subcordate or rounded at base, the larger ones to 6—8,5 cm long, 2—3 cm broad; ventral gland well developed nearly as long as bract — 142. *S. hylonoma* Schneider.
7. Leaves linear-oblong acute apex, margin revolute glandular-denticulate, dark-green obove, glaucous and hairy as in 150. *S. variegata*; filaments wholly growing togather; ventral gland about 1/2 as long as bract — 149. *S. Schneideriana* Hao.
7. Leaves linear-spathulate, enlarged above the middle 3—5—10 cm long, 9—12 mm broad, both sides glabrous; ventral gland 2/3 as long as the triangular or orbicular bract — 158. *S. purpurea* Linnaeus.
5. Ventral gland 1/5—1/4 as long as bract.
6. Bract orbicular; leaves lanceolate margin serrate (ovary glabrous) about 3,5 cm long, 8 mm broad — 156. *S. pycnostachya* Andersson.

6. Bracts elliptic (ovary pilose).
7. Filaments glabrous; leaves linear-lanceolate acuminate at apex margin serrate; bract ovate at apex —
152. *S. oxycarpa* Andersson.
7. Filament pilose at base; leaves variable in form, lanceolate oblong ovate or spathulate-oblong, margin entire; bract acute at apex — 144. *S. Kochiana* Trautvetter.

Key based on pistillate specimens.

1. Ovary sessile or subsessile.
2. Ovary glabrous.
3. Leaves ovate to elliptic rarely oblong, obtuse or rounded at apex, glabrous; petioles 1/8 as long as the leaves or 5—15 mm long.
4. Leaves denticulate or crenuate.
5. Dwarf shrub only 10—30 cm tall; leaves crenulate along the margin, thick in texture, lower surface light green.
6. Stigma oblong; bracts obtuse or acute at apex more or less pilose within; leaves 1,5—3,5 cm long, 1—2,3 cm broad; catkins in fruits to 5 cm long — 37. *S. Faxoniana* Schneider.
6. Stigma short or nearly wanting; bracts truncate at apex, glabrous on both sides; leaves 1—1,5 cm long, 8—13 mm broad; catkins about 2 cm long — 35. *S. microphyta* Franchet.
5. Small tree; leaves denticulate or remotely denticulate, 3—5 cm long, 12—35 mm broad; ovary sessile, style with 2 bilobed stigma.
6. Catkins pedunculate terminal at this year branches, usually with 3—4 normal leaves at the base; leaves elliptic oblong, margin quite denticulate; style indistinct; capsule ovate —
89. *S. denticulata* Andersson.
6. Catkins subsessile without normal or small leaves at the base, appearing from last year branches; leaves ovate 2,5—3,5 cm broad, margin remotely denticulate; style slender about 1,5 mm long; capsule including the persistent style 7—8 mm long —
90. *S. Wangiana* Hao.
4. Leaves entire.
5. Both ventral gland and dorsal gland present and forming into a cupular surrounding the base of the very short pedicel; leaves elliptic or obovate-elliptic 1,5—2,5 cm long —
70. *S. cupularis* Rehder.
5. Only ventral gland present without dorsal gland.
6. Leaves obovate oblong to 12 cm long, 5 cm broad; catkins in fruits elongated to 13—16 cm long —
42. *S. magnifica* var. *apatela* Hao.
6. Leaves much smaller.
7. Bracts truncate at apex, oblong, 3/4 as long as the ovary with 2 glands; leaves suborbicular-elliptic 1,5—4 cm long, glaucous beneath — 34. *S. resectoides* Handel-Mazzetti.
7. Bracts ovate at apex, orbicular or ovate, with one ventral gland.

8. Leaves 1,5—6 mm broad; catkins headlike consisting of only several flowers.
9. Prostrate shrub matlike over the ground only several cm tall; leaves small 3,5—6 mm long, 1,5—2,5 mm broad, coriaceous, lustrous above, linght green or glaucous beneath — 29. *S. ovatomicrophylla* Hao.
9. Erect shrub; leaves 13 mm long, 4—6 mm broad, papyraceous, whitish gray beneath — 27. *S. clathrata* Handel-Mazzetti.
8. Leaves 10—18 mm broad; catkins slender 2,5—4,5 cm long.
9. Both surfaces of the leaves glabrous; stipules broad ovate about 3 mm long with dentate margin — 79. *S. vaccinioides* Handel-Mazzetti.
9. Both surfaces more or less pubescent; stipules wanting — 80. *S. mictotricha* Schneider.

3. Leaves linear to elliptic-lanceolate, long acuminate to acute at apex; petioles variable from 1 to 7 mm in length; with one ventral gland.
4. Lower side of leaves tomentose or silky or pilose.
5. Leaves linear — 134. *S. microstachya* Turczaninow.
5. Leaves not linear.
6. Margin entire.
7. Catkins pedunculate 3—4,5 cm long, 6—9 mm thick, with 3—4 leaves at the peduncle.
8. Stigma quite short; bracts ovate at apex; ovary ovate-oblong — 84. *S. luctuosa* Léveillé.
8. Stigma slender about 1,5 mm long, bilobed at apex; bracts more or less retuse at apex; ovary oblong — 103. *S. spodiophylla* f. *liocarpa* Hao.
7. Catkins 2—3 cm long, 3—4 mm thick with slender stigma — 83. *S. polyclona* Schneider.
6. Margin revolute denticulate or remotely serrate.
7. Leaves oblong-lanceolate margin serrate; catkins to 10 cm long; branches brown tomentose — 113. *S. praticola* Handel-Mazzetti.
7. Leaves elliptic margin denticulate; branches white tomentose — 53. *S. tetradenia* Handel-Mazzetti.
4. Lower sides of leaves glabrous or glaucous.
5. Margin serrate.
6. Both ventral gland and dorsal gland present; tall tree; branches slender yellowish green; catkins 1—2 cm long arranging along the slender branches — 57. *S. matsudana* Koidzumi.
6. Without dorsal glands.
7. Tree with slender and pendulous branches — 56. *S. babylonica* Linnaeus.
7. Shrubs with erect branches.
8. Leaves 6—8 mm long, 3—4 mm broad; bracts both sides glabrous; shrub dwarf to 15 cm tall (with 2 glands in male flower) — 21. *S. oreophyla* Hooker f.
8. Leaves much longer and broader.
9. Bracts oblong slightly longer than the ovary, membranaceous in the texture — 11. *S. macrolepis* Turczaninow.
9. Bracts orbicular or ovate, covering the base of the ovary.

10. Ovary ovate; leaves lanceolate 10—15 mm broad, 5—8 cm long, glaucous beneath — 101. *S. chikungensis* Schneider.
10. Ovary elliptic elongated; leaves green or light green beneath.
11. Style nearly as long as ovary entire with capitate stigma — 97. *S. Rehderiana* Schneider.
11. Style short, stigma oblong slender — 156. *S. pycnostachya* Andersson.

5. Margin entire.
6. Leaves cordate at base, sessile; catkins pedunculate 2,5—3 cm long, 6 mm thick, peduncle about 1,5 cm long; leaves elliptic-lanceolate or narrow-lanceolate 1,4—4 cm long, 5—12 mm broad — 78. *S. macroblasta* Schneider.
6. Leaves not cordate at base.
7. Female flower with dorsal gland present; bract nearly as long as the glabrous ovary; catkins 2,5 cm long, sessile, densely flowered; style quite short, stigma 2 bilobed — 52. *S. tenella* Schneider.
7. Female flower without dorsal glands.
8. Bracts more or less pubescent without or along the margin ciliate.
9. Style short with short stigma — 92. *S. cathayana* Diels.
9. Style slender with oblong stigma — 91. *S. Delavayana* Handel-Mazzetti.
8. Bracts glabrous on both surfaces.
9. Catkins about 3 mm thick; leaves elliptic-oblong, 2—4,5 cm long, 10—15 mm broad, stigma entire — 85. *S. rhoophila* Schneider.
9. Catkins 4—6 mm thick.
10. Bracts broad ovate.
11. Leaves glaucous beneath, oblong-elliptic, buth ends obtuse, 10—15 mm long, 5—6 mm broad; catkins 3—5 cm long, 6—7 mm thick, peduncle to 3,5 cm long — 77. *S. dissa* Schneider.
11. Leaves oblong, 15—40 mm long, 10—15 mm broad, both sides green and glabrous — 82. *S. Tangii* Hao.
10. Bracts elliptic to oblong.
11. Rachis glabrous — 86. *S. longiflora* Andersson.
11. Rachis pilose — 81. *S. hypoleuca* Seemen.

2. Ovary pilose or tomentose.
3. Female flower bearing 2 glands, one ventral and one dorsal, these glands usually lobed at apex.
4. Style devided into 2 slender stigma, 2,5—3 mm long; bracts as long as the ovary, both sides pubescent; catkins 2—6 cm long, 8—10 mm thick, bracts rachis and ovary at all pilose; leaves elliptic or obovate-elliptic to broad-lanceolate, sericeous-villose beneath, 3—6 cm long, 1,5—3 cm broad — 60. *S. Ernesti* Schneider.
4. Style short without slender stigma.
5. Petioles about 1/8 as long as the leaves; bracts ovate at apex; leaves ovate or elliptic, 1—2.4 cm long, 8—15 mm broad; catkins 10—15 mm long, 10 mm thick.

6. Leaves pubescent; glands separated — 71. *S. oritrepha* Schneider.
6. Leaves glabrous; glands forming into a cupula — 70. *S. cupularis* var. *lasiogyne* Rehder.
5. Petioles very short or wanting; bracts retuse at apex; leaves elliptic-oblong.
6. Bracts elliptic-spathulate obout as long as ovary — 65. *S. atopantha* Schneider.
6. Bracts orbicular surrounding and covering the ovary-base — 64. *S. sclerophylla* Andersson.
3. Female flower bearing only ventral gland (without dorsal gland) this gland cylindrical and smooth, but not lobed at apex.
4. Catkins sessile.
5. Catkins headlike or oblong, only 10—20 mm long during flowering time.
6. Leaves linear, silky or silvery hairy or sericeous-villose below, never glabrous.
7. Style slender much longer than the ovary, about 2,5 mm long with acute bracts, leaves entire — 123. *S. viminalis* Linnaeus.
7. Ovary with a very short style; bracts ovate; leaves remotely serrate.
8. Branches of this year densely white silky; leaves densely silvery hairy on both sides; bracts pilose on both sides — 135. *S. Wilhelmsiana* Bieberstein.
8. Branches of this year nearly glabrous reddish brown in colour; leaves nearly smooth above and with both sides glabrous bracts.
9. Leaves 3—5 cm long, 2—4 mm broad; fruit acuminate at upper end — 136. *S. angustifolia* Willdenow.
9. Leaves 1,5—5 cm long, 3—7 mm broad; fruit ovate — 137. *S. cheilophila* Schneider.
6. Leaves not linear.
7. Leaves obovate to oblong, ovate at apex, sessile.
8. Leaves deeply cordate at base, 3—6 cm long, 14—18 mm broad; bracts orbicular — 157. *S. multinervis* Franchet.
8. Leaves attenuate or subrounded at base, about 10—15 mm long 5 mm broad; bracts lanceolate slightly shorter than the ovary.
9. Leaves entire — 148. *S. andropogon* Léveillé.
9. Leaves denticulate — 150. *S. variegata* Franchet.
7. Leaves lanceolate acute at apex petiolate.
8. Style slender as long as or $^2/_3$ as long as the ovary (in 120. *S. dolia* $^1/_2$ as long as the ovary).
9. Stigma slender about as long as the slender style; leaves broad-lanceolate to lanceolate, 12—15 cm long, 2—2,4 cm broad, margin finely serrate, teeth acuminate, quite glaucous below, long acuminate at apex, small tree — 155. *S. Pierotii* Miquel.
9. Stigma capitate; leaves elliptic-oblong, 15—20 mm long, 7—10 mm broad, margin entire, obtuse at apex, dwarf shrub — 139. *S. myrtillacea* Andersson.
8. Style indistinctly bearing capitate stigma.

9. Nerves on both sides of the leaves reticulate, yellowish white, more or less elevated; leaves broader above the middle; bracts orbicular as long as the ovary (excluding the indistinct style) — 158. *S. purpurea* Linnaeus.

9. Leaves without distinct nerves, spathulate lanceolate; bracts elliptic-oblong 1/2 as long as the ovary — 124. *S. lamashanensis* Hao.

5. Catkins 3—5(8) cm long.

6. Style longer than the ovary; catkins 5—8 cm long, sessile; bracts long hairy 1/2 as long as the ovary rarely longer; style about 2,5 mm long with entire stigma; leaves silky when young becoming glabrous, rhombic-lanceolate, narrowed at base, margin serrate, 4—7 cm long, 15—20 mm broad — 138. *S. gracilistyla* Miquel.

6. Style shorter than the ovary.

7. Leaves glabrous crenuately serrate long lanceolate, to 16 cm long, 27 mm broad; stipule linear-lanceolate to 22 mm long; catkins slender 8 cm long, 6 mm thick; bracts spathulate-oblong as long as the ovary — 154. *S. Miyabeana* Seemen.

7. Leaves entire.

8. Bracts obovate-cuneate, toothed at apex, style nearly as long as the ovary — 107. *S. sikkimensis* Andersson.

8. Bracts entire; style shorter.

9. Leaves white tomentose; branches also white tomentose catkins 3—4 cm long; style and stigma about equal long — 104. *S. polia* Schneider.

9. Leaves glabrous and glaucous beneath; catkins similar to *S. polia* but somewhat longer; style very short — 105. *S. obscura* Andersson.

4. Catkins pedunculate with several small or normal leaves at the base.

5. Style and ovary obout equal in length.

6. Ovary with 2 styles; bracts truncate or incised at apex, about as long as the ovary; leaves lanceolate 4—8 cm long, 12—25 mm broad, pilose above white densely tomentose beneath — 59. *S. bistyla* Handel-Mazzetti.

6. Ovary with a single style; bracts ovate very short at the ovary-base; leaves obovate-elliptic, green glabrous above, glaucous beneath to 5 cm long, 2,5 cm broad — 72. *S. phylicifolia* Linnaeus.

5. Style much shorter than the ovary.

6. Leaves ovate to elliptic, glabrous, rounded or obtuse at apex; petioles 1/3 as long as the blade; catkins singular terminal at branches, dwarf erect shrubs.

7. Ovary with 2 slender and reflexed style; leaves broad ovate, 3—4 cm long, 2,5—3,5 cm broad, green glabrous above, glaucous beneath; petioles 6—15 mm long; catkins about 3 cm long — 36. *S. annulifera* Marquand.

7. Ovary with a single style and 2 bilobed stigma, style and stigma nearly equal long.

8. Leaves glaucous beneath, margin entire; branches pilose — 38. *S. coggygria* Handel-Mazzetti.

8. Leaves light green beneath, margin crenuate-serrate; branches glabrous — 32. *S. oreinoma* Schneider.

6. Leaves lanceolate rarely elliptic-oblong.

7. Catkins short only 10—20 mm long during flowering time.

8. Leaves silky or pubescent beneath (see also 119. *S. inamoena* Handel-Mazzetti.

9. Style distinct, about 1 mm long; leaves elliptic-lanceolate obtuse or acute at apex, margin entire; catkins sessile somewhat 10 mm long — 120. *S. dolia* Schneider.

9. Style indistinct.

10. Leaves small 7—12 cm long, 4—6 mm broad, silky below — 147. *S. myricaefolia* Andersson.

10. Leaves 2—5 cm long, somewhat broader, pubescent below — 143. *S. pubescens* Hao.

8. Leaves glabrous or glaucous beneath (in 119. *S. inamoena* Handel-Mazzetti pilose).

9. Bracts acute at apex, 1/2 as long as the silky ovary; leaves variable in form, lanceolate oblong ovate or spathulate oblong, green above, glaucous beneath, catkins about 15 mm long, with villose rachis — 144. *S. Kochiana* Trautvetter.

9. Bracts rounded at apex.

10. Leaves margin denticulate, lower side glaucous and pilose, elliptic, 13—25 mm long — 119. *S. inamoena* Handel-Mazzetti.

10. Leaves margin entire, lower side glabrous.

11. Bracts broad ovate; petioles 5 mm long — 73. *S. amnematchinensis* Hao.

11. Bracts oblong; petioles 1—3 mm long — 146. *S. caesia* Villars.

7. Catkins 3—14 cm long.

8. Catkins having several normal leaves at the peduncle; leaves ovate to oblong-lanceolate, maximus, 5—10—15 cm long, 2—5 cm broad (except 39. *S. floccosa* Burkill); petioles 5—15 mm long.

9. Bracts as long as the ovary, or truncate and retuse at apex.

10. Leaves glaucous below, elliptic-oblong, 2,5 cm long, 13 mm broad; style rather long most cleft at apex, 1—1,2 mm long; bracts truncate with 0,7—0,8 long a gland — 115. *S. resecta* Diels.

10. Leaves hairy or tomentose below.

11. Bracts elliptic-oblong about as long as the style, densely pubescent without, nearly glabrous within; ovary ovate-elliptic, about 1,5 mm long, style short with 2 slender bilobed stigma; leaves ovate-lanceolate, 3—5 cm long, 10—14 mm broad — 140. *S. hupehensis* Hao.

11. Bracts shorter than the style.

12. Lower surface of the leaves brown tomentose; catkins 8—12 cm long, style elongated, stigma deeply devided to the middle of style; leaves broad lanceolate 5—10 cm long, 15—25 mm broad — 111. *S. Daltoniana* Andersson.

12. Lower surface not brown tomentose.

13. Leaves obovate or obovate-elliptic, 2—4 cm long, 15—20 mm broad, margin entire; catkins 25—30 mm long — 39. *S. floccosa* Burkill.

13. Leaves lanceolate, tomentose or silky pilose below, both ends acuminate, 7—10 cm long, 2—2,5 cm broad, margin entire; catkins 5—8 cm long — 112. *S. salwinensis* Handel-Mazzetti.

9. Bracts shorter than the ovary, ovate or rounded at apex.

10. Leaves entire.

11. Catkins slender 5—7 mm thick.

12. Leaves ovate-elliptic or broad-elliptic, rounded at base, obtuse or subrounded at apex, lower side glabrous or along the nerves hairy, 2,5—4 cm long, 2—4 cm broad — 48. *S. amphibola* Schneider.

12. Leaves ovate-lanceolate, acuminate at apex, obtuse or rounded at base, silky below; ventral gland cylindrical as long as bract — 142. *S. hylonoma* Schneider.

11. Catkins 8—11 mm thick, 4—11 cm long.

12. Leaves elliptic-oblong, lower side quite glabrous — 141. *S. dibapha* Schneider.

12. Leaves lower side hairy or tomentose (see also 118. *S. Balfouriana* Schneider).

13. Leaves hairy — 63. *S. Forrestii* Hao.

13. Leaves tomentose — 114. *S. driophila* Schneider.

10. Leaves crenuate or remotely serrate.

11. Margin distinctly serrate, ovate to elliptic-oblong, 5—8 cm long, 3,2—3,8 cm broad, the larger ones to 13 cm long, 5,2 cm broad, rounded at base; densely sericeous-villose beneath; petioles 10—15 mm long, with semispherical stipules; catkins 9—14 cm long, about 1,5 cm thick; capsule obovate 6 mm in diameter — 49. *S. argyrophegga* Schneider.

11. Margin crenuate or remotely serrate.

12. Ventral gland orbicular, 1/3 as long as bract; leaves obovate-lanceolate, 4—5,5 cm long, 1,8—2 cm broad; style slender glabrous about 1,5 mm long — 62. *S. plochotricha* Schneider.

12. Ventral gland cylindrical, nearly as long as the bract; style shorter than 1 mm in length.

13. Branches glabrous and purplish brown; leaves ovate-oblong, 2—4,5 cm long, 1—1,5 cm broad; catkins 5—7 cm long; (male flower bearing only one ventral gland) — 142. *S. hylonoma* Schneider.

13. Branches pubescent; leaves lanceolate rounded at base, acute or acuminate at apex, dark green sparingly hairy above, silvery pilose beneath, margin crenuate, 9—15 cm long, 1,2—2 cm broad; catkins 7—12 cm long (male flower bearing 2 glands) — 61. *S. phaidima* Schneider.

8. Catkins without normal leaves at the peduncle; leaves small 2—7 cm long, 6—20 mm broad.

9. Margin serrate.

10. Stipules linear-lanceolate; ovary linear-oblong (male flower bearing only one gland and only one filament) — 152. *S. oxycarpa* Andersson.

10. Stipules to be not seen; ovary obovate-elliptic (male flower bearing 2 glands and 2 filaments).
11. Bracts oblong ovate at apex, 1/2 as long as the ovary; leaves densely sericeous beneath —
68. *S. sericarpa* Andersson.
11. Bracts truncate broad ovate, 1/4 as long as the ovary; leaves glaucous more or less hairy beneath —
69. *S. jessoensis* Seemen.

9. Margin entire.
10. Ovary nearly glabrous; leaves oblong-lanceolate, 3—4 cm long, 5—12 mm broad; petioles 2—5 mm long; catkins cylindrical 5,5—7 cm long, bract 1/2 to 2/3 as long as the ovary — 76. *S. melea* Schneider.
10. Ovary villose or tomentose.
11. Style about 1 mm long.
12. Bract oblong; leaves apex acute —
97. *S. Rehderiana* var. *brevisericea* Schneider.
12. Bract broad-ovate; leaves apex rounded —
103. *S. spodiophylla* Handel-Mazzetti.
11. Style indistinct; bract broad ovate.
12. Bract about as long as the ovary —
67. *S. psilostigma* Andersson.
12. Bract 1/2 as long as the ovary —
117. *S. wolohoensis* Schneider.

1. Ovary long or short pedicelled not sessile.
2. Ovary glabrous.
3. Prostrate dwarf shrubs only up to 30 cm tall; leaves small pale below, 3—12 mm long, 2—7 mm broad; ovary pedicelled, glabrous; stigma 2 parted.
4. Bracts about as long as the pedicels; leaves spathulate, 4—12 mm long, to 4 mm broad, lustrous and coriaceous above, light green and glaucous beneath, ovate at apex, attenuate into a long petiole at base, the petioles 1/3 to 1/2 as long as the leaves; catkins headlike small, consisting of several flowers — 25. *S. Lindleyana* Wallich.
4. Bracts much longer than the pedicels.
5. Branches hirsute or hairy; leaves suborbicular-elliptic, 1,5—8 mm broad, 4—11 mm long, obtuse at apex, margin entire or remotely and indistinctly serrate; catkins 3—7 mm long, 7—20 flowered; branchlets loosely pilose; bracts truncate at apex —
23. *S. hirticaulis* Handel-Mazzetti.
5. Branches glabrous.
6. Ventral gland cylindrical about 1/2 as long as the pedicel —
24. *S. piptotricha* Handel-Mazzetti.
6. Ventral gland longer than the pedicel or as long as the pedicel.
7. Shrub only to 3 cm tall, without distinct stems or branches, all leaves densely compressed togather similar to a mat; leaves 2,5—3,5 mm long, 1,5—2 mm broad, subsessile —
30. *S. acuminatomicrophylla* Hao.
7. Shrub somewhat taller, with distinct stems and branches; leaves

4—9 mm long, 1,5—5 mm broad; petioles 2—3 mm long —
26. *S. brachista* Schneider.

3. Erect shrubs or small trees; leaves much longer and broader.
4. Margin entire.
5. Leaves ovate to elliptic.
6. Catkins 10—20 mm long, with 3—4 normal leaves at the peduncle; leaves 5—35 mm long, 3—15 mm broad, rounded at base; gland only one —
102. *S. myrtilloides* Linnaeus.
6. Catkins to 20 cm long, with glabrons rachis; leaves maximus to 22,5 cm long, 15 cm broad; glands 2 — 42. *S. magnifica* Hemsley.
6. Catkins in fruits 4—9 cm long, about 12 mm thick, rachis sericeous; leaves 3,5—8 cm long, 2—2,5 cm broad, elliptic-oblong or elliptic, subobtuse at apex, rounded or obtuse at base; with ventral gland at pedicel-base —
44. *S. pella* Schneider.
5. Leaves lanceolate to oblong, 4—7 cm long, 2—3,5 cm broad, with elevated yellowish nerves below; catkins to 7 cm long, 10 mm thick —
88. *S. caloneura* Schneider.
4. Margin not entire.
5. Both ventral gland and dorsal gland present, these glands sometimes forming into a pseudodisk surrounding the base of pedicel; catkins terminal at branches.
6. Leaves at peduncle small, densely yellowish silky below; glands forming into a nearly 4-lobed disk; pedicels as long as the bracts —
12. *S. dodecandra* Léveillé.
6. Leaves at peduncle normal, never small, glabrous or glaucous below not silky.
7. Petioles with 1-2 pairs of glands at apex above or along the margin; leaves thick in texture; capsule elliptic or ovate conic to oblong.
8. Leaves cordate at base, ovate-lanceolate, long acuminate, whitish glaucous beneath, 12 cm long, 3,3 cm broad; catkins in fruits to 14 cm long, 10 mm thick; petioles 10—15 mm long glabrous; stipules triangular serrate —
17. *S. Maximowiczii* Komarov.
8. Leaves not cordate at base, light green rarely glaucous beneath; catkins in fruits much shorter.
9. Pedicel of ripe fruit about 1 mm long.
10. Leaves whitish glaucous beneath, ovate to elliptic-lanceolate, acuminate or acute, rounded or attenuate at base, 4—10 cm long, 2—4,5 cm broad; stipules angular, serrate as the leaves; glands at petiole-apex distinctly pedicelled —
16. *S. glandulosa* Seemen.
10. Leaves light green beneath; stipules not to be seen; glands along the above margin of the petioles.
11. Leaves lustrous above, rounded or broad-attenuate at base; bract oblong nearly as long as the ovary —
18. *S. pentandra* Linnaeus.
11. Leaves not lustrous above, acute or attenuate at base; bracts as long as the pedicel —
19. *S. paraplesia* Schneider.

9. Pedicel 2—3 mm long; leaves lanceolate light green beneath.
10. Capsule globose 6 mm long, 3,5 mm in diameter — 15. *S. Cavaleriei* Léveillé.
10. Capsule elliptic, 4 mm long, 2,5 mm across.
11. Bracts triangular; stipules reniform — 6. *S. Rosthornii* Seemen.
11. Bracts orbicular, villose near the base without, stipule linear — 5. *S. dictyoneura* Seemen.

7. Petioles without glands.
8. Ovary linear, as long as pedicel — 7. *S. Dunnii* Schneider.
8. Ovary globose or suborbicular.
9. Leaves glabrous and glaucous below; bracts glabrous without — 4. *S. Wilsoni* Seemen.
9. Leaves pubescent or hairy beneath; bracts pilose without.
10. Branches of this year villose or tomentose; leaf margin slightly serrate or nearly entire.
11. Bracts oblong densely long hairy without, as long as the pedicel — 10. *S. araeostachya* Schneider.
11. Bracts orbicular, pilose, ½ as long as the pedicels — 9. *S. pyrina* Wallich.
10. Branches of this year almost glabrous; margin finely serrate — 8. *S. tetrasperma* Roxb.

5. Only ventral gland present, without dorsal gland in the female flower.
6. Leaves ovate or obovate rarely elliptic-oblong.
7. Leaves 8—15 mm long, 6—12 mm broad.
8. Margin unequally inciso-serrate, these teeth well distinct.
9. Catkins oblong, obout 1,5 cm long; bracts more glabrous without long hairs, the teeth along the margin irregular and small — 41. *S. Brayi* Ledebour.
9. Catkins headlike; bracts with long and dense hairs; the teeth of the margin nearly equal each other, about 2 mm in length — 40. *S. berberifolia* Pallas.
8. Margin crenuate; leaves spathulate-ovate.
9. Pedicel longer than the ovary; leaves 8—15 mm long, 6—9 mm broad, glaucous beneath — 31. *S. calyculata* Hooker f.
9. Pedicel shorter than the ovary; leaves like the preceeding species but light green beneath — 33. *S. flabellaris* Andersson.
7. Leaves maximus much longer and broader.
8. Bracts glabrous on both sides; ovary glabrous, short pedicelled; ventral gland cylindrical nearly as long as the pedicel; leaves elliptic-oblong, 6—12 cm long, broad-cuneate or rounded at base, glabrous above, silky along the veins or quite glabrous beneath — 43. *S. moupinensis* Franchet.
8. Bracts sparingly more or less hairy without.
9. Catkins 6—12, in fruits elongated to 20 cm long, terminal at branches; leaves 7—15 cm long, 4—7 cm broad.
10. Bracts orbicular; leaves narrow-ovate or elliptic, attenuate or subacute at base, margin slightly serrulate — 45. *S. Fargesii* Burkill.

10. Bracts elliptic; leaves rounded or cordate at base, margin finely serrate — 47. *S. kansuensis* Hao.

10. Bracts ovate acute at apex; leaves broad ovate or obovate, rounded at base, margin remotely serrate — 46. *S. omeiensis* Schneider.

9. Catkins sessile, 2,5—5 cm long.

10. Leaves orbicular to rhombic-elliptic, 6—10 cm long, 4—6 cm broad, lustrous above, glabrous and slightly glaucous beneath, margin irregularly serrate, rounded or broad attenuate rarely cordate at base; petioles about 1/3 as long as leaves; catkins sessile, without small leaves at the peduncle; stipules semi-orbicular serrate — 93. *S. pirolaefolia* Ledebour.

10. Leaves elliptic-lanceolate serrate, the small ones at catkin-base entire green glabrous above, white green beneath, acute at both ends; petioles short only 3—5 mm long; catkins pedunculate with 1—3 small leaves at peduncle; stipules triangular — 94. *S. hastata* Linnaeus.

6. Leaves lanceolate or linear-lanceolate.

7. Catkins appearing before the leaves, sessile, 3—5 cm long, 8—12 mm thick.

8. Catkins sessile to 5 cm long, 10 mm thick, narrower towards apex, usually curved, densely flowered, rachis villous; style about as long as the ovary; stigma linear 2—3 lobed; ventral gland obtuse-rectangular; bracts oblong, subobtuse, brownish, long sericeous — 95. *S. Léveilléana* Schneider.

8. Catkins cylindrical; leaves lanceolate both ends acute 5,5—12 cm long, 12—23 mm broad, glaucous beneath, branches glabrous.

9. Bracts acute at apex, as long as pedicel, short villose — 128. *S. rorida* Lachshewitz.

9. Bracts ovate at apex, nearly as long as the ovary, densely long hairy — 96. *S. daphnoides* Villars.

7. Catkins appearing at the same time with leaves, pedunculate, with 1—3 normal or small leaves at the peduncle.

8. Leaves silky tomentose beneath, lanceolate-oblong, 3—5 cm long, 8—15 mm broad, both ends acute; bracts glabrous on both sides; petioles very short or wanting — 87. *S. pseudowolohoensis* Hao.

8. Leaves glabrous on both sides, light green or glaucous beneath.

9. Leaves 1,5—3 cm long, 5—9 mm broad; petioles 1—3 mm long, puberulous along the above side; bracts 2 times as long as the pedicel — 75. *S. characta* Schneider.

9. Leaves 4—10 cm long, 12—23 mm broad, acuminate at apex, attenuate at base, glabrous above, more or less glaucous beneath.

10. Rachis glabrous; tree 80—100 ft. tall; leaves lanceolate, margin denticulate or entire; ventral gland 1/3 as long as pedicel — 14. *S. eucalyptoides* Meyer.

10. Rachis more or less pilose, not glabrous.

11. Bracts orbicular or ovate; ventral gland about as long as the short pedicel; petioles 13—15 mm long — 99. *S. Chingiana* Hao.

11. Bracts and pedicel about equal in length; ovary as long as pedicel; ventral gland ½ as long as pedicel.
12. Leaves on the peduncle of catkins entire —
1. *S. nipponica* Franchet.
12. Leaves on the peduncle of catkins serrate —
2. *S. triandra* L.

2. Ovary pubescent or pilose or tomentose.
3. Catkins pedunculate appearing at the same time with the leaves, 5—10 cm long, 6—15 mm thick, with 3—4 normal leaves at the peduncle.
4. Leaves rhombic-ovate to obovate-elliptic, rounded or obtuse at base.
5. Catkins cylindrical 9—11 cm long, 13 mm thick, with 3—4 normal leaves at the peduncle; leaves broad elliptic or obovate-elliptic, glabrous on both sides, rounded at apex, 3—6 cm long, 2,5—4 cm broad; petioles glandular at apex about 15 mm long (see also 50. *S. ulotricha* Schneider) — 51. *S. allochra* Schneider.
5. Catkins 4—5 cm long, pedunculate, but the leaves at peduncle usually early deciduous; leaves rhombic-ovate, 15—35 mm long, 10—25 mm broad, light green above, more or less hairy beneath, acute at apex; petioles about 5 mm long — 116. *S. Wuiana* Hao.
4. Leaves lanceolate, acuminate and attenuate.
5. Bracts lanceolate-acute, slightly longer or shorter than the pedicels; leaves silky pilose beneath, margin entire; petioles 5—10 mm long —
98. *S. heterochroma* Seemen.
5. Bracts broad ovate, denticulate, as long as the ovary; leaves glaucous and glabrous beneath with serrate margin; petioles about 1,5 cm long — 100. *S. spathulifolia* Seemen.
3. Catkins sessile, appearing before the leaves, without normal leaves at the peduncle, if the leaves present, then very small.
4. Catkins 1—2 cm long or headlike.
5. Stigma oblong, shorter than the style or as long as the style of which the glabrous part is brown in colour.
6. Bracts much longer than the pedicel; leaves 3—7 cm long, 8—27 mm broad, usually pilose beneath —
131. *S. sibirica* Pallas.
6. Bracts shorter than the pedicel.
7. Leaves variable in form, linear-oblong to obovate-elliptic, nearly glabrous above, finely silky beneath especially so when young, 1—2,5 cm long, 5—15 mm broad, acute at apex, attenuate at base, margin entire — 126. *S. repens* Linnaeus.
7. Leaves lanceolate, 8—13 cm long, 12—17 mm broad, glabrous lustrous above, glaucous beneath, margin serrulate —
130. *S. Siuzevii* Seemen.
5. Stigma longer than the style, without distinct style.
6. Leaves elliptic to ovate-oblong, glabrous on both sides, glaucous with yellowish elevated nerves below, rounded or obtuse at apex, 3—6 cm long, 12—35 mm broad, margin entire or remotely toothed; stipule reniform, irregularly dentate, lower side as glaucous as the leaves; bracts lanceolate — 127. *S. Starkeana* Willdenow.

6. Leaves linear-lanceolate, silky or pilose below, margin entire; bracts orbicular.
7. Hairs of catkins golden in colour; leaves also with dense golden hairs on the lower side when young — 121. *S. flavicans* Hao.
7. Hairs of catkins white; leaves also white hairy — 125. *S. subopposita* Miquel.

4. Catkins 3—6 cm long.
5. Leaves lanceolate or linear-lanceolate, 11—15 cm long, 15—25 mm broad, dark green above and glabrous or glaucous beneath, margin dentate or serrate, acuminate, attenuate; petioles glabrous 5—15 mm long; bracts elliptic nearly as long as the ovary.
6. Stipules reniform glandular-serrate; ventral gland cylindrical, as long as the pedicel — 129. *S. opaca* Andersson.
6. Stipules linear-lanceolate or lanceolate, as serrate as the leaves.
7. Ventral gland as long as the pedicel; (male flower bearing only one filament) — 151. *S. lepidostachys* Seemen.
7. Ventral gland ½ as long as the pedicel; (male flower bearing 2 filaments) — 106. *S. insignis* Andersson.
5. Leaves ovate or obovate to oblong-lanceolate, villose or hairy beneath never glabrous, margin entire irregularly dentate or crenuate.
6. Pedicel short as long as the ventral gland (male flower bearing 2 glands); branches densely white villose; leaves ovate-lanceolate to elliptic, 5 cm long, 1,5 cm broad, obtuse, narrowly rounded at base, with entire margin — 66. *S. erioclada* Léveillé.
6. Pedicel 2 to 3 times as long as the ventral gland (male flower bearing only ventral gland).
7. Margin entire, oblong-lanceolate, both sides densely pilose, at least so when young, 4—6 cm long, 12—15 mm broad, ovary linear-oblong; capsule about 9 mm long — 110. *S. Wallichiana* Andersson.
7. Margin irregularly dentate or serrate; stipules reniform or triangular.
8. Leaves ovate-oblong, margin serrate abruptly broader above the middle, attenuate at base, pubescent or short villose below, 5—10 cm long, 2—4,5 cm broad — 108. *S. cinerea* Linnaeus.
8. Leaves obovate, margin irregularly dentate, rounded at base, 6—14 cm long, 3—6 cm broad, densely long hairy beneath — 109. *S. caprea* Linnaeus.

Sect. 1. **Triandrae** Dumortier in Bijdr. Natuurk. Wetensch. I. 58 (1825). — Seemen Salic. Jap. 16 (1903). — Schneider in Sargent, Pl. Wils. III. 106 (1916).

Trees or shrubs, branches elongated usually flexuous; leaves lanceolate, acute, serrate, glabrous or nearly so; male flowers having 2 free glands; stamens 3 or more; ovary long pedicelled, glabrous; style wanting or most short, with short stigma.

1. **Salix nipponica** Franchet et Savatier, Enum. Pl. Jap. I. 459 (1875). — *Salix triandra* var. *nipponica* Seemen Salic. Jap. 27. t. 2. fig. e—j (1903). — *Salix Kinashii* Léveillé in Bull. Soc. Bot. France LII (1905). — *Salix amygdalina* Koidzumi in Tokyo Bot. Mag. XXVII

(1913) 94. — *Salix amygdalina* var. *nipponica* Schneider in Sargent, Pl. Wils. III (1916) 106.

Tree to 10 m tall; branches light to dark brown in colour; leaves lanceolate 7,5 cm long, 2,3 cm broad, dark green above, glaucous or whitish beneath, with prominent middle nerves and lateral nerves; stipules ovate; staminate catkins reproducing with the leaves, to 7 cm long, 8 mm thick, loosely flowered near the base, cylindrical, rachis glaucous hairy; bracts oval, ½ to ⅔ as long as stamens, hairy except the apex; stamens 3, hairy at base with yellow anthers; pistillate catkins erect 2,5 cm long, 6 mm thick, rachis pilose, bracts oval so long as the pedicel; ovary glabrous, orbicular; pedicel glabrous about as long as the ovary.

Shantung: Tsingtao, Nebel. Chekiang: Tienmushan, P. J. Tsoong 97, with male flowers, April 26, 1934.

Distribution: Korea and Japan.

2. **Salix triandra** Linnaeus Sp. 1016 (1753). — Villars Pl. de Dauph. III. 762 (1789). — Andersson Monog. Salic. 23. Taf. II. fig. 17 (1863). — Burkill in Jour. Linn. Soc. XXVI (1899) 533. — Wolf in Act. Hort. Petrop. XXI (1903) 182. — Léveillé in Bull. Soc. Bot. France LVI (1909) 301. — *Salix amygdalina* Linnaeus Sp. 1016 (1753). — Schneider in Sargent, Pl. Wils. III (1916) 106. — Rehder in Jour. Arn. Arbor. IV (1923) 139.

Tree with glabrous branches; leaves lanceolate to oblanceolate, both surfaces glabrous, dark green above glaucous beneath, margin serrate, 4—10 cm long, 12—20 mm broad, young leaves whitish pilose beneath; petioles only 2—3 mm long rarely longer; staminate catkins 3—5 cm long, rachis pilose, short pedunculate, bracts ovate about 2 mm long glabrous without, stamens 3, filaments glabrous more or less hairy at base about 2 times longer than the bracts; pistillate catkins longer than the male one; bracts oblong hairy and ciliate about 3 mm long; ovary pubeseent or becoming glabrous; pidicels about 2,5 mm long, glabrous; stigma 2-parted, one part more or less bifid; capsule about 7 mm long opening to the base; young shoots having reniform to ovate stipules.

Manchuria: Amur, Maximowicz, Hohenaker, Bertels; Ussuri, ex Herb. Seemen; Nikolsk Ussuriisk, P. V. Siuzev 66, August 29, 1905; the same locality, Siuzev 30, August 29 and April 28, 1905. — Shantung: Tsingtao, Ilitis mountain, O. Nebel; Chefoo, Debeaux (ex Burkill). — Kiangsu: Shanhai, E. Faber. — Hopeh: Hsiao wu tai shan, Nebel; without locality (ex Léveillé).

Distribution: Europe, Siberia, N. Asia, N. Africa.

Sect. 2. **Urbanianae** Seemen Salic. Jap. 24. t. 1. g—l (1903). — Schneider in Sargent, Pl. Wils. III (1916) 103.

The species of this section are quite similar to those of sect. *Pentandrae* but differ in the much longer leaves which are usually cordate at base; ovaries sessile or short pedicelled, glabrous or tomentose, style distinctly 2-parted, stigma bifid elongated; only one species in this section recorded in China.

3. **Salix angiolepis** Léveillé in Fedde, Rep. III (1906) 22. — Schneider in Sargent, Pl. Wils. III (1916) 104.

Branches densely white tomentose when young, becoming subglabrous and blackish; leaves ovate-oblong, whitish above, densely white sericeous or tomentose beneath, short acuminate at apex, subacute at base, margin entire, nerves not prominent, to 2 cm long, 5—8 mm broad; petioles short, about 3 mm long, white villose; staminate catkins terminate at short branchlets, short pedunculate, cylindrical, densely flowered, to 3 cm long, 3—5 mm thick, rachis tomentose; stamens 5—8, included by the bract, filaments unequal short, with yellow ovate anthers; glands 2, forming a lobed pseudodisk; bracts broad ovate, subtruncate at apex, sometimes denticulate, white villose within, nearly glabrous without, ciliate along the margin about 2 times longer than the filaments; female flower not known — Pl. I. fig. 1: Cavalerie no. 2096 (type).

Kweichow: Pin fa, J. Cavalerie 2096, with male flowers (type! in Herb. Edinb.).

Sect. 3. **Wilsonianae** K. S. Hao n. sect.

Staminate catkins slender, loosely flowered, the internode between the bracts slightly longer than the nearly glabrous bracts, flower with both ventral gland and dorsal gland present, these glands usually separated (except 6. *S. Rosthornii*); pistillate flower bearing only one ventral gland (except 4. *S. Wilsoni*); ovary glabrous linear to lanceolate; pedicels as long as the ovary or slightly longer, bracts small or only $^1/_2$ as long as the pedicel; leaves elliptic lanceolate.

4. **Salix Wilsoni** Seemen in Bot. Jahrb. XXXVI. Beibl. LXXXII. 28 (1905). — Léveillé in Bull. Soc. Bot. France LVI (1909) 301. — Schneider in Sargent, Pl. Wils. III (1916) 40. — Hers in Jour. N. China Branch R. As. Soc. LIII. 115 (1922). — Rehder in Jour. Arn. Arbor IV (1923) 137. — Handel-Mazzetti Symbolae Sinicae VII (1929) 60. — *Salix Mesnyi* Burkill in Jour. Linn. Soc. XXVI (1899) 530 non Hance. — *Salix Argyi* Léveillé in Fedde, Rep. X (1912) 473. — *Salix Tsoongii* Cheng in Contr. Biol. Lab. Sci. Soc. China, Bot. X (1935) 68. fig. 7.

Tree to 13 m tall with pilose young branches; leaves cinereopilose becoming glabrous, oval to oblong, acuminate at apex, attenuate rarely rounded or subcordate at base, serrate, quite green above, glaucous beneath; stipules ovate entire; staminate catkins about 4 cm long, with pilose rachis, stamens 3—5; bracts ovate pubesent becoming glabrous, more less ciliate, about 1 mm long; pistillate catkins about 4 cm long, in fruits elongated to 7—8 cm long; bracts elliptic about 2 mm long, nearly as large as the glabrous ovary; ovary elliptic lanceolate glabrous, with capitate and somewhat lobed stigma; capsule subglobose. — Pl. I. fig. 2.: Wilson no. 415 A (type).

Kweichow: without locality, E. Faber 116. — Kiangsu: without locality, D'Argy (type! of *S. Argyi* Léveillé, with male and female flowers); Nanking, E. Faber 901. — Chekiang: Ning po, D. Macgregor; Fenghwa, on moist slopes, small tree, P. C. Tsoong 142 ♀ (co-type! of *Salix Tsoongii* Cheng), April 20, 1935. — Hupeh: Ichang, side of streams, alt. 300 m, Wilson 2121; Hsiang shan hsien, woodlands, alt. 1300—1600 m, Wilson 2140; the same locatity, A. Henry 3442, 3538, 246, 1277 (type! ♂♀ in Herb. Berlin); Pa tung,

Henry 334 and 415 A (type! ♂♀ in Herb. Berlin); without locality, P. C. Silvestri 3390. — Shensi: Tsao tang sze, Hsia 3361, April 25, 1933. — Honan: Yung ning, Tsi li ping, J. Hers 428, 436; Teng feng hsien, J. Hers 254.

5. **Salix dictyoneura** Seemen in Bot. Jahrb. XXIX (1900) 275. t. II. fig. a—d. — Léveillé in Bull. Bot. France LVI (1909) 298. — Schneider in Sargent, Pl. Wils. III (1916) 98. — Handel-Mazzetti Symbolae Sinicae VII (1929) 60.

Branches pilose; stipules linear ciliate along the margin, about 6 mm long; leaves oblong or elliptic lanceolate, acuminate, narrowly attenuate, margin cartilagineous-serrate, nerves prominent especially on the lower side, both sides glabrous, 4—7 cm long, 15—25 mm broad; petioles pilose, 5—10 mm long; pistillate catkins in fruits about 5,5 cm long, 10 mm thick; bracts small, broad ovate, glabrous, long ciliate, about 1 mm long; pedicels to 3 mm long, slightly shorter than the capsule; capsule glabrous, elliptic-acute, staminate catkins not known. — Pl. II. fig. 3: Rosthorn no. 1511 (type).

Szechuan: Nan chuan hsien, Rosthorn 1511 (type! ♀ in Herb. Berlin).

6. **Salix Rosthornii** Seemen in Bot. Jahrb. XXIX (1900) 276. t. II. fig. e—h. — Léveillé in Bull. Bot. France LVI (1909) 300. — Handel-Mazzetti Symbolae Sinicae VII (1929) 60.

Branches white pilose; stipules reniform, serrate, glabrous above and hairy beneath, 3 mm long, 4—6 mm broad; leaves lanceolate 3—8 cm long, 15—20 mm broad, both surfaces glabrous except the middle nerve which is quite pilose espesially on the upper side, margin serrate, acuminate, attenuate, petioles pilose 7—12 mm long; staminate catkins slender loosely flowered, to 4,5 cm long, rachis villose; bracts ovate about 1/2 as long as filaments, pilose near the base, stamens 3—5 rarely 6, pilose at base; those leaves at catkin-base linear-lanceolate about 10 mm long, densely silky below; pistillate catkins in fruits about 6 cm long, with hairy rachis, bracts triangular ciliate; pedicel about 3 mm long, glabrous slightly shorter than the glabrous elliptic acute capsule. — Pl. II. fig. 4: Rosthorn no. 1512 (type).

Szechuan: Nan chuan hsien, Rosthorn 1512 ♂ (type! in Herb. Berlin). — Hunan: Chang sha, Handel-Mazzetti 11597 ♂.

7. **Salix Dunnii** Schneider in Sargent, Pl. Wils. III (1916) 97. — *Salix chekiangensis* Cheng, in Contr. Biol. Lab. Sci. Soc. China, Bot. IX. 62. fig. 5 (1933).

Shrub or small tree; young branches sparingly villose, becoming purplish and glabrous; leaves elliptic-lanceolate or oblanceolate, often apiculate at apex, acute at base, upper surface green more or less pubescent, lower surface pilose, distinctly reticulate, margin glandular-serrate, entire toward the base, 2—5 cm long, 8—15 mm broad; staminate catkins loosely flowered, excluding peduncle, about 5 cm long, rachis villose; stamens 3—6, filaments glabrous or pilose at base; glands 2, somewhat orbicular, the ventral one slightly larger and more or less lobed at apex; bracts orbicular to elliptic, outer side glabrous except near the base where there is pilosity, inner side villose, ciliate,

1/3 as long as the filaments; leaves at catkin-peduncle usually entire, lanceolate puberulous above slightly glaucous beneath; pistillate catkins at the terminal of branchlets, about 5 cm long, 10 mm across, densely flowered, rachis loosely villose; bracts broadly ovate, subacute, loosely villose, as long as the pedicels, deciduous; capsule glabrous long pedicelled, 3—4 mm long with small subsessile persistent stigma. — Pl. II. fig. 5. Dunn no. 3504 (type).

Fukien: Foochow, H. H. Chung 3174, April 18, 1925; Foochow and vicinity, Tang Chung Chang 4405, July 29, 1926; Ing ho hsien, Ku chen shien, by side of stream, small tree, 2—3 m tall, H. H. Chung 2670, April 26, 1924; without locality, Dunn's Exped. to Central Fokien, april to June 1905, Hongkong Herb. 3504 (type! only female flower, in Arn. Arbor.; Herb. Berlin; Herb. Kew). — Chekiang: E. Tienmushan, K. K. Tsoog, ♂ ♀ April 4, 1929; Tienmushan, W. Y. Hsia 220, July 30, 1927; Chin hua hsien, S. Chen 925 ♂ (co-type! of *Salix chekiangensis* Cheng), April 1933. — Kiangsi: Ki an, near water, H. H. Hu 671 ♀ (forma typica) April 15, 1921.

Sect. 4. **Tetraspermae** Andersson in Svensk. Vetensk. Akad. Handl. VI. 1 (Monog. Salic.) (1867). — Schneider in Sargent, Pl. Wils. III (1916) 93.

Trees or shrubs; flowers male and female usually having 2 glands from which a many-lobend disk or cupula is formed; leaves usually large, broad lanceolate, often acuminate; staminate catkins short pedunculate, cylindrical, loosely flowered, stamens numerous 5—10 or more; pistillate catkins pedunculate, quite elongated, much loosely flowered; ovary distinctly pedicelled, glabrous or pilose; style wanting or very short; stigma capitate, thickened, emarginate or 2-loded; capsule glabrous.

8. **Salix tetrasperma** Roxburgh Pl. Corom. I. 66. t. 97 (1795). — Forbes Salicet. Woburn. 61, t. 61 (1829). — Roxburgh Fl. Ind. ed. 2. III 753 (1832). — Andersson in Jour. Linn. Soc. IV (1860) 41. — Andersson in Svensk. Akad. Handl. VI. 1 (Monog. Salic.) (1867). — De Candolle, Prodr. XVI. pt. 2. (1868) 192. — Hance in Jour. Bot. (1868) 49. — Hooker f., Fl. Brit. Ind. V (1888) 626. — Burkill in Jour. Linn. Soc. XXVI (1899) 533. — Cooke, Fl. Pres. Bombay II. pt. 4 (1907) 661. — Schneider in Sargent, Pl. Wils. III (1916) 94.

Tree; trunk erect but short, as thick as a man's body; branches nearly glabrous or pubescent; leaves linear-lanceolate, green glabrous above, whitish sparingly hairy beneath, margin finely serrate, 6—16 cm long, 1,5—3 cm broad, petioles glabrous or slightly pilose about 10—15 mm long; staminate catkins 5—8 cm long, scales truncate or rounded at apex, densely pubescent; stamens 8—9, filaments about 3 times longer than the scale, subreflexed, pilose at base, with golden anthers; pistillate catkins cylindrical, to 10 cm long with 2 spreading stigma; capsule cordate-ovate, glabrous 1-celled, 4 seeded, somewhat as long as the pedicel.

Yunnen: Mengtze, alt. 1700 m, Henry 9964 A ♂. — Kwansi: Yao shan, K. K. Wang 843. — Kwangtung: muddy banks of the Canton River, Sampson (ex Hance). — Tibet: Without locality,

Schlagintweit 4942, 13196. — N. W. Himalaya, many collectors such as Hooker, Thomson, Meebold, Griffith, Duthie.

Distribution: Siam, India, Khasia, Sikkim, Bengal, Nilger, Pungab.

9. **Salix pyrina** Wallich apud Andersson in Svensk. Akad. Handl. VI. 4 (Monog. Salic.) (1867). — Schneider in Sargent, Pl. Wils. III (1916) 95. — *Salix disperma* Don, Prodr. Fl. Nepal. 58 (1825). — *Salix tetrasperma* var. *pyrina* Andersson in Jour. Linn. Soc. IV (1860) 41.

Tree; branchlets densely tomentose or villose espesially when young; leaves lanceolate, sparingly hairy above, silvery hairy beneath, 4—8 cm long, 1,5—2,5 cm broad, margin entire, both ends acuminate; staminate catkins similar to the preceeding species, filaments 7—9 pilose below the middle, bracts orbicular both sides villose 1/3 as long as filaments, glands 2 separated; pistillate catkins as tomentose as young branchlets in fruits elongated to 12 cm long, pedicel 3—5 mm long glabrous slightly shorter than the glabrous capsule; capsule acuminate-orbicular.

Yunnan; without locality, Henry.

Distribution: Nepal, without precise locality in 1821, Wallich 3705 (type! ♂ ♀ in Herb. Berlin, Herb. Kew), G. S. Perottet, Hamilton (type! of *S. disperma* Don); Siam.

10. **Salix areostachya** Schneider in Sargent, Pl. Wils. III (1916) 96. — Handel-Mazzetti Symbolae Sinicae VII (1929) 60. — *Salix tetrasperma* var. *ichnostachya* Andersson in Jour. Linn. Soc. IV (1860) 41.

Shrub or small tree, 2,5—6,5 m tall; branchlets slightly tomentose when young, becoming glabrous and purplish-brown; leaves of fruiting branches ovate- or obovate-lanceolate, acute or obtuse at base, acuminate at apex, margin short glandular-serrate, rarely entire, glabrous except the nerves above, pubescent beneath, about 6 cm long, 2,5 cm broad; the greater ones to 12 cm long and 3,5—4 cm broad; petioles tomentose, purpurascent, 10—15 mm long; stipules small semicordate puberulous slightly glandular-denticulate deciduous; staminate catkins cylindrical densely flowered, 4—8 cm long, circa 8 mm thick, short villose; flowers subverticillate; stamens 5—6, as long as bracts or 2 times as long as bracts, filament pilose at base with yellow anthers; pistillate catkins cylindrical slender 5—8 cm long, 8 mm in diameter, rachis villose; ovary ovate at base, attenuate toward the apex, long pedicelled, style nearly wanting with a short obovate 2-lobed stigma; capsule globose 7—9 mm long; catkins in fruits pendulous; leaves of sterile branches to 10 cm long, 1,7 cm broad, more or less pilose.

Yunnan: Mengtze, alt. 1800 m A. Henry 9338 (type! ♂) a tree to 6,5 m tall; the same locality, alt. 1600 m near water, A. Henry 9338 C (co-type! ♀ in Herb. Berlin); the same locality, alt. 1800 m Henry 11250; between Kambaiti and Teng yueh, via Ku yung, J. F. Rock 7564; Sheweli River, east of Teng yueh, Rock 7697. Szechuan: Ning yüan fu, Schneider 923, April 17, 1914.

Distribution: India and Nepal.

Sect. 5. **Dodocandrae** K. S. Hao n. sect.

Leaves linear-lanceolate with short petioles of which at its apex there are no distinct glands; staminate catkins appearing with the leaves, glands 2 the ventral one much longer; pistillate catkins having tomentose rachis and pilose bracts, glands 2 more or less adnate each other, ovary glabrous without distinct style; the species of this group being quite similar to that of the following group *Pentandrae* but differing in the very short petioles.

11. **Salix macrolepis** Turczaninow in Bull. Soc. Nat. Mosc. XXVII (1854) 371 et Fl. Baical.-Dahur. II. 98 (1856). — Andersson Monog. Salic. 52, t. III. fig. 33 (1867). — Schmidt Reis. Amur. Sachal. 172 (1868). — Wolf in Act. Hort. Petrop. XXI (1903) 178. — Schneider in Sargent, Pl. Wils. III (1916) 102.

Branches purplish and glabrous when young; leaves linear-lanceolate, light green above, whitish glaucous beneath, narrow attenuate, finely acuminate; leaves of fruiting branches serrate, those of young shoots more or less entire; petioles not distinct, formed from the attenuation of the leaf-base; pistillate catkins terminate at short branchlets, with glabrous rachis, bracts papyraceous glabrous elliptic oblong slightly longer than the glabrous ovary; ovary sessile subglobose with bifid stigma; capsule obovate-elliptic 4 mm long, 2 mm across.

Amur: without locality, Stanovo et Schmidt. — Manchuria: witout precise locality, V. Komarov 470 ♂, May 18, 1897.

Distribution: Transbaikalia, Dahuria, Kamtschatika and Saghalin.

12. **Salix dodecandra** Léveillé in Bull. Soc. Bot. France III (1905) 141 et LVI (1909) 298. — Schneider in Sargent, Pl. Wils. III (1916) 101. — *Salix anisandra* Léveillé et Vaniot in Fedde, Rep. III (1906) 22. — Léveillé in Bull. Bot. France LVI (1909) 297. — *Salix Camusi* Léveillé in Bull. Bot. France LVI (1909) 297.

Branches glabrous red rugose-striated; leaves ovate to oblong, lower side densely sericeous when young then glabrous, acute or subacute at apex, attenuate at base; staminate catkins slender loosely flowered, subsessile, about 5 cm long, rachis white tomentose; stamens 6—12, unequal, usually curved, sometimes more or less adnate each other, pilose at base, 2 times as long as the bracts; bracts pubescent or nearly so, with 3—5 indistinctly black nerves, orbicular or elliptic-oblong, rounded at apex, glands 2 forming a nearly 4-lobed disk; pistillate catkins about 4 cm long, pedicels as long as the bracts, style short, stigma 4-lobed; capsule glabrous blackish, about 3 mm long, slightly longer than the pedicels. — Pl. IV. fig. 7: Cavalerie no. 1317 (type).

Kweichow: Pia-Fong, Esquirol 362 (type! ♂ of *Salix anisandra* Léveillé, in Herb. Edinb.) mars 1905; Pin fa, J. Cavalerie 1317 (type! ♂ ♀ in Herb. Edinb.) march 22, 1902; environs de Kouy yang, Bodinier 2134 (type! ♂ of *S. Camusi* Léveillé).

13. **Salix cantoniensis** Hance in Jour. Bot. IV (1868) 48. — Burkill in Jour. Linn. Soc. XXVI (1899) 527. — Léveillé in Bull. Bot. France LVI (1909) 297.

Branches glabrous; leaves lanceolate 4—8 cm long, about 10 mm broad, green and glabrous above, glaucous beneath, margin serrate, very similar to those of *S. babylonica* Linnaeus; petioles short 3—5 mm long; staminate catkins sessile loosely flowered, 3—4 cm long; bracts elliptic acute pilose without glabrous within, ½ as long as filament; stamens variable in number, the lowest flowers on the catkin usually having 5—7 stamens, those flowers on the upper part of the catkin having only 2—3, filaments pilose below the middle; glands 2, separated, the ventral one somewhat larger, pistillate flower not known.

Kwangtung: Canton, Sampson in Herb. Hance no. 13757 (type! ♂ in Herb. Kew; Herb. Berlin; Mus. Brit.).

14. **Salix eucalyptoides** Meyer apud Schneider in Sargent, Pl. Wils. III (1916) 99. — *Chosenia eucalyptoides* Nakai in Herb. Arnold Arboretum.

A remarkably tall willow, growing from 80—100 feet tall; bark covered with white bloom becoming schaggy like that of an *Eucalyptus;* branches glabrous elongated, dark brown; leaves lanceolate or elliptic-lanceolate, both ends acute, green above, glaucous beneath, nerves distinctly yellow or brown, margin entire short denticulate-serrate toward apex, 4—6,5 cm long, 1,2—2 cm broad, the larger ones to 7 cm long, 2,3 cm broad; petioles glabrous without gland 4—6 mm long; pistillate catkins glabrous, terminate at short branches, peduncle to 2 cm long glabrous; capsules including pedicel about 5 mm long, glabrous, narrow-elliptic, pedicel about 1 mm long, staminate flower not seen. — Pl. IV. fig. 8: Meyer no. 179 (type).

Manchuria: Harbin and vicinity, C. S. Sargent

Distribution: without locality, valleys, F. N. Meyer 179 (type! ♀ in Arn. Arbor.), August 14, 1906.

Sect. 6. **Pentandrae** Dumortier in Bijdr. Natuurk. Wetensch I. 58 (1825). — Schneider in Sargent, Pl. Wils. III. (1916) 98.

Trees or shrubs; leaves usually larger, lanceolate or oval to elliptic; petioles mostly glandular; staminate flowers producing before or with the leaves, densely flowered; filaments numerous, 2 glands like those of sect. *Tetraspermae.*

14. **Salix Cavaleriei** Léveillé in Bull. Soc. Bot. France LVI (1909) 298. — Schneider in Sargent, Pl. Wils. III (1916) 101. — Handel-Mazzetti Symbolae Sinicae VII (1929) 61. — *Salix polyandra* Léveillé in Fedde, Rep. VI (1909) 377. — *Salix Pyi* Léveillé in Bull. Soc. Bot. France LVI (1909) 300. — *Salix yunnanensis* Léveillé in Bull. Soc. Bot. France LVI (1909) 301. — *Salix tetrasperma* Diels in Not. Bot. Gard. Edinb. VII (1912) 91, non Roxburgh.

Male plant: leaves ovate lanceolate, those at catkin-base usually spathulate, much smaller and thiner; catkins 3—4,5 cm long, 8 mm thick, with hispid-villose rachis; stamens 8—12, bracts ovate-deltoid, rather acute, densely pubescent on the inner surface and along the margin, often glabrous without; stipules when present triangular. Female plant: leaves lanceolate, long acuminate, more or less cordate at base, margin serrate, both surfaces glabrous, to 10 cm long,

2,5—3 cm broad; catkins with 3—4 normal leaves at base, stigma sessile, ovary glabrous ovoid, pedicels 1/2 to 3/5 as long as the ovary, bracts ovate deltoid, rather acute, distinctly pubescent without and along the margin; ventral gland broad, embracing the base of pedicel; dorsal gland 2- or 3-lobed; capsule glabrous, globose, 6 mm long, 3,5 mm across, pedicel slightly shorter than the capsule when young.

Yunnan: Ta li, in 1897, E. Bodinier 65 (type! of *Salix polyandra* Léveillé); the same locality, in 1906, F. Ducloux 658, 669 (type! ♂ ♀); the same locality, in 1906, F. Ducloux (type! ♂ of *Salix Pyi* Léveillé); the same locality, F. Ducloux 653 (type! ♂ of *Salix yunnanensis* Léveillé); Likiang Snow Range, J. F. Rock 5038, 5036, 8105, 3193; the same locality, C. Schneider 1779; Yunnan fu, C. Schneider 154, 326; Tai-pon, alt. 2500 m. Maire 309; Ning yüan fu, Schneider 923, April 17, 1914; Li chiang fu, 2500 m, Forrest 2033. — Bord de la revière à Ta-kiao, E. E. Maire 521. Szechuan: Te chang, C. Schneider 774. Kwangsi: Kwei shen, S. S. Sin 35, November 8—9, 1927.

16. **Salix glandulosa** Seemen in Bot. Jahrb. XXI. Beibl. LIII 55 (1896) et Salic. Jap. 22. t. I. fig. a—f (1903). — Léveillé in Bull. Acad. Intern. Géog. Bot. XIV (1904) 208. — Léveillé in Bull. Bot. France LVI (1909) 299. — Nakai in Jour. Coll. Sci. Tokyo XXXI (1911) 214. — Koidzumi in Tokyo Bot. Mag. XXVII (1913) 87. — Schneider in Sargent, Pl. Wils. III (1916) 98. — Loesener in Beih. Bot. Centralbl. XXXVII. Abt. II. 106 (1919). — Schneider in Bailey, Gentes Herbarium I. 17 (1920). — Hers in Jour. N. China Branch R. As. Soc. LIII 115 (1922); — Rehder in Jour. Arn. Arbor. IV (1923) 138. — *Salix triandra* var. *vulgaris* Seemen in Bot. Jahrb. XXIX (1900) 276.

Branches dark brown, glabrous lustrous; leaves ovate to elliptic-lanceolate, acuminate or acute, rounded or attenuate at base, 4—10 cm long, 2—4,5 cm broad, margin serrate, both surfaces glabrous, green above, whitish glaucous beneath; petioles pubescent when young becoming glabrous 5—12 mm long, glandular at apex; stipules on the shoots angular, serrate as the leaf, about 7 mm long, early caducous; staminate catkins producing with the leaves, 4—5 cm long, 8 mm thick, peduncle and rachis pubescent, bracts small ovate only to 1 mm long; stamens 5, filaments about 2 times as long as the scale, hairy at the base, with yellow and orbicular anthers; pistillate catkins pendulous, long cylindrical, loosely flowered, to 5,5 cm long, 10 mm thick; peduncle to 20 mm long with hairy rachis; ovary glabrous, elliptic, 2-lobed, every lobe bifid, bracts about as long as the pedicel of the ovary; capsule obovate, acute, 3 mm long, 2 mm in diameter, opening into 2 parts when ripe. — Pl. V. fig. 9; Hilgendorf (type).

Honan: Chi kung shan, Bailey, June 6 and 14, 1917; Lu shih, J. Hers 952. Shantung: Chefoo, Muping, T. N. Liou 1444, May 28, 1930; the same locality, Liou 1367, Aug. 24, 1933. Hopeh: Hsiao wu tai shan, H. W. Kung 1393, May 25, 1931; the same locality, near Tang chih sze, Kung, September 11, 1930. — Anhwei: without precise locality, K. Ting 7934, April 13, 1925. — Shensi: Ko lu pa, G. Giraldi 1158, June 1895.

Distribution: Japan, Hilgendorf and Siebold (type! ♂ ♀ in Herb. Berlin), Korea.

17. **Salix Maximoviczii** Komarov in Act. Hort. Petrop. XVIII (1901) 442. — Komarov in Act. Hort. Petrop. XXII 25, t. I. (1904). — Léveillé in Bull. Bot. France LVI (1909) 299. — Nakai in Jour. Coll. Sci. Tokyo XXXI (1911) 214. — Schneider in Sargent, Pl. Wils. III (1916) 100. *Salix cardiophylla* Trautvetter et Meyer in Middendorff, Reise Sibir. I. pt. 2. Bot. abt. 2. (1856) 77. t. 19, 20 a—i.

Tree to 20 m tall, 3,5 m in girth; branches glabrous; leaves cordate at base, ovate lanceolate, long acuminate, measure up to 12 cm in length and 3,3 cm in width, dark green and glabrous above, whitish glaucous beneath, margin serrate, finely acuminate, nerved prominent beneath; petioles glabrous 8—16 mm long; young branches or shoots having serrate-orbicular stipules which are early caducous; pistillate catkins in fruits to 14 cm long and 10 mm thick, terminal at a 2—3 leaved short branches, rachis quite glabrous, pedicels nearly 3 times as long as the gland and about a quater the lenght of the narrow ovate ovary; stigma short, deeply bifid; capsule narrowly obovate-elliptic, about 5 mm long, somewhat thickened in the middle.

Mandchuria and Korea, Komarov (type! ♀ in Herb. Berlin).

18. **Salix pentandra** Linnaeus Sp. 1016 (1753). — Andersson Monog. Salic. 35 (1867) with Taf. II. fig. 24. — Wolf in Act. Hort. Petrop. XXI (1903) 179. — Léveillé in Bull. Bot. France LVI (1909) 300. — Schneider in Sargent, Pl. Wils. III (1916) 101.

Branchlets lustrously glabrous; buds quite viscid; stipules on the young branches sometimes well developed into a so orbicularform as those of *Salix glandulosa;* leaves elliptic-lanceolate, acute at apex, rounded or broad-attenuate at base, both surfaces very glabrous, lustrously green above, light green beneath; petioles glandular along the upper side, glabrous; staminate catkins densely flowered 2—4 cm long, bracts lanceolate about 5 mm long, glabrous without, pilose within, stamens 5—6, densely white hairy at the filament-base, rachis pubescent; pistillate catkins 2—4 cm long, rachis villose, bracts lanceolate acute at apex also villose as rachis, ovary glabrous pedicelled, stigma 2-lobed; capsule obovate-oblong, acute at apex, to 7 mm long, 2 mm in diameter before opening.

Kirin: Wo chiu kow, O mu hsien, 500 m, along the bank of River, Kung 1889, July 21, 1931. Amur: Amur River, in 1855, R. Maack 207. — Yunnan: road sides in the plain of Tali, Delavay 4544, 4628; without locality, Ducloux 90, Bodinier et Ducloux 69.

Distribution: North Europe, N. America and Asia.

19. **Salix paraplesia** Schneider in Sargent, Pl. Wils. III (1916) 40. — Hers, Liste Ess. Lign. Honan (1922) 27. — Rehder in Jour. Ar. Arbor. IV (1923) 138.

Tree 6—7 m tall; male plant glabrous; staminate catkins densely flowered, 3,5—6 cm long, 1—1,2 cm thick; stamens 5—7, filaments pilose at base, 2 times as long as the bracts, with oval yellow anthers; glands 2, the dorsal one ovate, obtuse, the ventral one smaller bifid at

apex; bracts oblong obtuse villose at least so near the base; female plant with glabrous branches purplish lustrous; leaves obovate-elliptic, ovate rarely ovate-lanceolate, acute or obtuse at base, acuminate or acute at apex, dark green above, palish green or whitish beneath, glandular-serrate, 3,5—6 cm long, 1,8—3,2 cm broad, petioles 5—10 mm long glandular at apex; pistillate catkins 2—3 cm long, in fruits to 4 cm long, 13 mm thick, rachis villose, densely flowered; ovary 7—8 mm long, ovate conic, cronate with subsessile stigma; capsule glabrous short pedicelled obout 9 mm long. — Pl. V. fig. 10. Wilson no. 4518 (type).

Szechuan: Mountains west of Ta chien lu, alt. 2600—3800 m. Wilson 4518 (type! ♂ ♀ in Herb. Arn. Arbor.); the same locality, Wilson 4518 A. — Kansu: Vicinity of Labrang, R. C. Ching 779; Toul ping, near Lichen, alt. 2150—2950 m. Ching 433, July 7—9, 1923; Min chow, La ma shan, 3500 m. K. S. Hao 644, July 5, 1930. — Shensi: Chung nan shan, river bank, tree, Kung 2871, June 18, 1933; the same locality, Y. Y. Pai 1229, August 29, 1934; Lung chow, Kuan shan, J. Hers no. 2236; Chow tze hsien, Pai 1315, September 13, 1934; Ning shan hsien, Kung 3067, July 16, 1933. — Shansi: Kau ti shan, 6100 ft. W. Y. Hsia 1130, June 22, 1929; Kolan, 4500 ft. Hsia 1676, August 25, 1930. — Chekiang: Chien chiao, T. N. Liou 429, August 4, 1930; Tien tai shan, along stream side, C. Y. Chiao 14265, July 18, 1927. — Hupeh: Chang yang hsien, Wilson 1441. — Honan: Chi kung shan, L. H. Bailey; The same locality. J. Hers 960; Young ning, J. Hers 1114; Sung hsien, Hers 1251. — Kokonor: Shang wu chuang, near Si ning, alt. 2900 m. Hao 769, August 3, 1930.

Sect. 7. **Lindleyanae** Schneider in Sargent, Pl. Wils. III (1916) 144.

Branches prostrate or spreading; leaves 3—12 mm long, 2—7 mm broad, glaucous or pale below, lanceolate, oblanceolate to ovate-lanceolate, margin entire or serrate, nerves elevated; catkins short, few flowered; stamens 2, anthers yellow, glands 2; female flowers mostly with one ventral gland; ovary glabrous, short pedicelled, style short bifid at apex, stigma 2-parted; species of this section occur in Himalaya and western China; *S. Lindleyana* Wallich considered as the typical form.

20. **Salix secta** Hooker f. apud Andersson in Jour. Linn. Soc. IV. (1860) 57. — *Salix oreophila* var. *secta* Andersson in De Candolle Prodr. XVI. pt. 2 (1868) 297. — Hooker f. Fl. Brit. Ind. V (1888) 635. — Schneider in Sargent, Pl. Wils. III (1916) 146.

A very small plant only to 3—4 cm tall; leaves ovate about 3 mm long, 2,5 mm broad, both sides glabrous, truncate and deeply 3—5 lobed at apex, subcoriaceous; catkins few flowered, filaments glabrous 2 times as long as bracts, anthers rather large; pistillate catkins ovate-oval 4—6 flowered, headlike; capsule glabrous.

Sikkim: alt. 1400—1700 ft. J. D. Hooker (type! ♂ ♀ in Herb. Berlin, Herb. Kew).

21. **Salix oreophila** Hooker f. apud Andersson in Jour. Linn. Soc. IV (1860) 57. — Hooker f., Fl. Brit. Ind. V (1888) 635. — Burkill

in Jour. Linn. Soc. XXVI (1899) 531. — Léveillé in Bull. Bot. France LVI (1909) 300. — Schneider in Sargent, Pl. Wils. III (1916) 146.

Leaves obovate or oblong-cuneate, narrowed into a short petiole at base, acute at apex, 3—5 deeply serrate toward apex, quite entire below the middle, nerves impressed above prominently rugose beneath, both sides glabrous, 6—8 mm long, 3—4 mm broad; catkins 2—5 flowered, terminal at branches; staminate catkins puberulous, bracts acute nearly glabrous, filaments glabrous 2 times as long as bracts, glands 2 well developed, the ventral one 1/2 as long as the bracts, anthers globose small; pistillate catkins umbellate, bracts spathulate glabrous covering the ovary-base, style short, ovary glabrous, capsule sessile to 5 mm long.

Szechuan: Ta chien lu, Soulié 543 (ex Rehder). — Yunnan: under the peak of Lo pin chan near Lau kong and on the calcareous ridge of Yen tze hay, 8000—11000 ft., Delavay 2069, 3541, 4333 (Herb. Berlin, Herb. Kew, Mus. Paris).

Distribution: Sikkim, Hooker (type! ♂♀ in Herb. Berlin, Herb. Kew).

22. **Salix crenata** Hao n. sp. — *Salix calyculata* var. *glabrifolia* Handel-Mazzetti, Symbolae Sinicae VII (1929) 83.

Prostrate shrub matlike spreading over the rocks; leaves ovate 3—4 mm broad, 6—7 mm long, dark green and sheining above, light green beneath, both ends ovate or obtuse, margin crenulate, nerves more or less wrinkled; staminate catkins headlike consisting of only several flowers; stamens 2, unequal, with glabrous filament; bracts 3-nerved elliptic both sides glabrous about 1/2 as long as the stamen; ventral gland cylindrical, the dorsal gland similar to the ventral one but much longer; pistillate catkins not seen. Pl. VI. fig. 11. Rock no. 4948 (type).

Yunnan: Yantze watershed, district of Likiang, eastern slope of Likiang Snow Range, J. F. Rock 4948 (type ♂ in Herb. Berlin), May-October 1922.

23. **Salix hirticaulis** Handel-Mazzetti Symbolae Sinicae VII (1929) 84. Abb. I. nr. 6, 7, and Taf. I. Abb. 12.

Prostrate shrub up to 30 cm tall; branches hirsute-velutinus; buds 3 mm long, deciduous; leaves suborbicular-elliptic, 1,5—8 mm broad, 4—11 mm long, obtuse at apex, rounded or attenuate at base, margin entire or remotely and indistinctly serrate, obscure green and papillose above, pale or glaucous beneath; stipule subulate about 1 mm long; catkins appearing at branch-terminal, elliptic in outline, 3—7 mm long, 7—20 flowered; rachis and branchlets pilose; stamens 2, filament pilose below the middle, bracts truncate both sides glabrous 1/2 as long as filaments; ovary short pedicelled, glabrous, with short style and capitate stigma, bracts elliptic, ovate at apex, ventral gland cylindrical, rachis villose. — Pl. VI. fig. 12. Handel-Mazzetti no. 9294 (type).

Yunnan: Likiang, 3500—3950 m. Handel-Mazzetti 9294 (type! ♂♀ in Herb. Wien), July 4, 1916. — West-Himalaya: Kumaon, alt. 11100—11600 ft. collected by Schlagintweit 9902, 1—10 June 1855; the same locality, alt. 5000—7800 ft. Schlagintweit 9779,

May 24—31, 1855; Kumaon, R. Strachey and Winterbottom no. 13.

24. **Salix piptotricha** Handel-Mazzetti, Symbolae Sinicae VII (1929) 84. Taf. I. Abb. 11.

Erect dwarf shrub with glabrous branches; leaves obovate, 10—15 mm long, obtuse, glabrous above, more or less silky beneath, margin glandular-serrulate, coriaceous; pistillate catkins short peduncu-late about 6 mm long, rachis hirsute, consisting of 10—15 flowers; bracts oblong, 2 mm long, rounded at apex; ventral gland cylindrical about 1 mm long, ovary glabrous, pedicel 2,5 mm long, slender style with linear stigma; capsule glabrous 4 mm long; staminate catkins not seen. — Pl. VII. fig. 13. Handel-Mazzetti no. 8377 (type).

Yunnan: Am Nordfuße des Berges Maya zwischen Mekong und Salwin, alt. 4025 m, Handel-Mazzetti 8377 (type! ♀ in Herb. Wien), 23. IX, 1915.

25. **Salix Lindleyana** Wallich apud Andersson in Jour. Linn. Soc. IV. (1860) 56. — Hooker f., Fl. Brit. Ind. V (1888) 634. — Burkill in Jour. Linn. Soc. XXVI (1899) 530. — Brandis, Ind. Trees (1906) 638. Léveillé in Bull. Bot. France LVI (1909) 299. — Schneider in Sargent, Pl. Wils. III (1916) 145. — Bot. Gaz. LXIV. (1917) 148. — *Salix furcata* Andersson in De Candolle, Prodr. XVI. pt. 2 (1868) 291. — *Salix Lindleyana* var. *Souliei* Görz in Herb. Berlin.

Dwarf prostrate shrub only to 30 cm tall; the whole plant glabrous; leaves spathulate, 5—12 mm long, to 4 mm broad, lustrous and coria-ceous above, light green and glabrous beneath, ovate at apex, narrowly attenuate toward the base; petiolos glabrous yellowish brown, lustrously glabrous as the young branches; staminate catkins very small, terminal at branches, about 10 mm long, stamens 2 free slightly hairy at base, ventral gland cylindrical, bracts ovate-elliptic ovate or subtruncate at apex; pistillate catkins also small, headlike in outline, ovary glabrous short pedicelled, bracts glabrous slightly longer than the pedicel, ventral gland quite developed about as long as the pedicel; capsule glabrous about 3,5 mm long.

Yunnan: Mekong-Salwin divide, alt. 14000 ft., Forrest 19520; Mengtze, Forrest 19897 (type! of *Salix Lindleyana* var. *Souliei* Görz, in Herb. Berlin).

Distribution: Nepal, Wallich 3697 (type! ♂ ♀ in Herb. Berlin), Sikkim, Kumaon.

26. **Salix brachista** Schneider in Sargent, Pl. Wils. III (1916) 145. — Handel-Mazzetti, Symbolae Sinicae VII (1929) 85. — *Salix Lindleyana* Diels in Not. Roy. Bot. Gard. Edinb. VII 121 (1912), non Wallich.

Very small shrub with yellowish brown procumbent slender glabrous and prostrate branches; buds small obtuse glabrous; leaves firm elliptic, elliptic-lanceolate to spathulate, obtuse at apex, margin slightly denticulate toward the apex, rarely entire, 4—9 mm long, 1,5—5 mm broad; petioles 1—3 mm long more or less pilose; staminate catkins ovate-cylindrical, 7—10 mm long, about 5 mm thick, rachis villose, stamens 2, filaments villose below the middle, with

yellow oval anthers; ventral gland narrow oblong, 1/3 as long as bract, dorsal one smaller and narrower than the ventral; bracts obovate-oblong, yellow, glabrous, truncate or denticulate at apex; pistillate catkins several flowered; bracts 2/3 as long as ovary, elliptic-oblong, subtruncate at apex, rachis glabrous, ovary glabrous, ventral gland brown cylindrical as long as the pedicel, style divided into 2 elongated and 2-lobed stigma; capsule quite glabrous and lustrous about 3 mm long.

Szechuan: Ching chi hsien, Ta hsiang ling, mountains, alt. 2800 m, Wilson 4511 (type! ♂ ♀ in Herb. Arn. Arbor.). — Yunnan: Likiang Snow Range, J. F. Rock 3463; Likiang, 3600—4000 m, C. Schneider 3434; Likiang Range, Forrest 2340, 2474.

27. **Salix clathrata** Handel-Mazzetti Symbolae Sinicae VII (1929) 86. Abb. I. nr. 5 and Tafel I. Abb. 13.

Shrub 30 cm tall; leaves ovate rounded at base, obtuse at apex, cartilaginous-marginate, entire, olive-green above, glaucous beneath, 10—11 mm long, 6—7 mm broad; staminate catkins elliptic about 5 mm long, densely flowered, with 3 normal sessile leaves at the peduncle, rachis sericeous-villose, bracts obovate 2 mm long glabrous, glands 2, the ventral 1/3 as long as bract, the dorsal cylindrical somewhat shorter; filaments 2, free, 2 times as long as bract, pilose at base; pistillate catkins 10 mm long, terminal at short branches, about 30-flowered, rachis pubescent, bracts oblong retuse at apex usually glabrous, ventral gland 1/2 as long as bract, dorsal gland wanting; ovary sessile, ovoid, 1 mm long, stigma oblong 2-lobed; capsule glabrous 6 mm long.

Szechuan: Kalkfelsen, zwischen Yenyüen und Kwapi, 4000 m, Handel-Mazzetti 2375 (type! ♂ in Herb. Wien), 18. V. 1914; steinige feuchte Alpenwiesen der Berge von Yungning, Forrest 21256 (type ♀ ex Handel-Mazzetti), VI. 1922.

Salix clathrata var. **Rockiana** Handel-Mazzetti, Symbolae Sinicae VII (1929) 87.

Dwarf erect shrub up to 40 cm tall; branches glabrous blackish in colour; leaves elliptic ovate to oblong, slightly pubescent beneath, more or less ciliate along the margin, entire, acute, cuneate, 13 mm long, 4—6 mm broad (leaves of the female type having a glaucous lower surface); staminate catkins 7 mm long, elliptic in outline; bracts orbicular glabrous without, a little hairy near the base; filaments 3 times as long as bracts, pilose at base, only ventral gland present; pistillate catkins in fruits to 10 mm long, ovary glabrous, style short with indistinct stigma, bracts orbicular like those of the male flower.

Yunnan: Yangtze watershed, district of Likiang, eastern slopes of Likiang Snow Range, J. F. Rock 3975 (type! ♂ in Herb. Berlin); eastern slopes of Mount Dyinaloko, northern peak of Likiang Snow Range, Rock 9033 (type! ♂ in Herb. Berlin); Dschungdien-Hochlands, Forrest 10598 (ex Handel-Mazzetti).

28. **Salix Souliei** Seemen in Fedde, Rep. III (1906) 23. — Schneider in Sargent, Pl. Wils. III (1916) 62. — Pax et Hoffmann in Fedde, Rep. Beih. XII (1922) 353.

Shrub very small with procumbent or prostrating branches elongated to 15 cm long; branches glabrous reddish-brown in colour, lustrous; leaves oblong to oval, mostly about 8 mm long, rarely 12 mm long as Seemen described, 5 mm broad, acute and obtuse, coriaceous in texture, both sides glabrous, glaucous or pale beneath; staminate catkins producing at the same time with leaves, glabrous, headlike, only several flowers, about 5 mm long and thick, bracts oblong rounded at apex 4 mm long glabrous, stamens 2 glabrous slightly longer than the bracts, anthers oval yellowish; glands 2, the ventral linear-lanceolate, 1/3 as long as the bracts, the dorsal nearly as long as the ventral but much broader; pistillate catkins not seen. — Pl. VII. fig. 14. Soulie no. 2289 (type).

Szechuan: Ta tsien lu, Soulié 2289 (type! ♂ in Herb. Berlin) June and July 1894; the same locality, Gila Pass, 4600 m, Limpricht 1662; Dawo, westliche Parallelkette des Dshara, 4700 m, Limpricht 1780.

29. **Salix ovatomicrophylla** Hao n. sp. — *Salix microphylla* Hao in Herb. Berlin. — *Salix brachista* Handel-Mazzetti Symbolae Sinicae VII (1929) 85, non Schneider.

Dwarf shrub having resemblance to *Salix acuminatomicrophylla* Hao; branches prostrate, procumbent, yellowish brown, glabrous; buds ovate obtuse glabrous; folia elliptic coriaceous firm ovate at apex, dark green glabrous above, pale or glaucous beneath, 3—6 mm long, 1,5—2,5 mm broad, petiole 1—4 mm long, staminate catkins 3—5 flowered, about 6 mm long and thick, stamens 2, filaments glabrous with yellow oval anthers; glands 2, the ventral cylindrical, the dorsal elliptic-spathulate, 1/4 as long as bract; pistillate catkins headlike few flowered, with one gland, ovary ovate-elliptic subsessile glabrous, style short cronate with short stigma; capsule 3 mm long, sessile. — Pl. VIII. fig. 15. Schneider no. 2318 (type).

Yunnan: eastern slopes of Mount Dyinaloko, northern peak of Likiang Snow Range, J. F. Rock 10388; Yangtze watershed, prefectural district of Likiang, eastern slope of Likiang Snow Range, Rock 4994; Likiang, C. Schneider 2318 (type! ♂ ♀ in Herb. Berlin), 4200 m, August 1914.

30. **Salix acuminatomicrophylla** Hao n. sp. — *Salix acutifolia* Hao in Herb. Berlin, non Ledebour.

Shrub only to 3 cm tall; branches yellowish brown, procumbent and glabrous; buds obtuse glabrous; leaves firm coriaceous elliptic-lanceolate, both ends acute, green glabrous above, palish beneath, entire not denticulate, 2,5—3,5 mm long, 1,5—2 mm broad, subsessile; staminate catkins to 5 mm long, 3 mm thick, 3—4 flowered, rachis villose; glands 2, the ventral oblong-cylindrical, 1/3 as long as bract, filaments glabrous or pilose below the middle, anthers oval; bracts oblong spathulate obtuse both sides glabrous, 1/2 as long as filament; pistillate catkins sessile 3 mm long and thick, 2—3 flowered, rachis glabrous, ventral gland narrow oblong 1/2 as long as bract; ovary glabrous short pedicelled, style short 2-lobed at apex. — Pl. VIII. fig. 16. Rock no. 10346 (type).

Yunnan: Mountains of Moting, northeast of the Yangtze-Mekong watershed, J. F. Rock 10346 (type ♀ in Herb. Berlin) June 1923; Tali, Delavay 2069 (type ♂ in Herb. Berlin).

Distribution: Sikkim, 14000 ft., J. D. Hooker.

A very handsome species growing on the high mountains in Yunnan and Tibet, spreading over the ground and forming a dense mat over the rocks. It is easly distinguished from all other known species of this section by its small both ends acute leaves.

Sect. 8. **Floccosae** Hao n. sect.

Dwarf shrubs 30—100 cm tall; leaves ovate to obovate, remotely glandular-crenate-serrate along the margin; petioles 1/3 as long as the leaves; catkins terminal at branches; staminate flower with 2 glands; pistillate flower with one gland, ovary sessile except *Salix calyculata* Hooker f.

31. **Salix calyculata** Hooker f. apud Andersson in Jour. Linn. Soc. IV (1860) 55. — Hooker f., Fl. Brit. Ind. V (1888) 635. — Schneider in Sargent, Pl. Wils. III (1916) 146.

Small dwarf shrub; branches suberect; leaves spathulate ovate, 8—15 mm long, 6—9 mm broad, rounded at apex, attenuate at base, lustrous glabrous above, slightly glaucous beneath, margin crenate, somewhat hairy on the lower side when young; petioles about 1/3 to 1/4 as long as the leaves; staminate catkins oval-elliptic, bract ligulate obovate glabrous; stamens 2, 2 times as long as bract, filament free glabrous; pistillate catkins elliptic, bracts like those of the male one, ventral gland 1/2 as long as bracts, ovary glabrous thicker toward the apex, pedicel longer than the ovary; capsule glabrous.

Sikkim: alt. 12000—15000 ft., J. D. Hooker (type! ♀ in Herb. Kew, Herb. Berlin).

32. **Salix oreinoma** Schneider in Sargent, Pl. Wils. III (1916) 138. — Handel-Mazzetti Symbolae Sinicae VII (1929) 82.

Lower shrub with prostrate branches; branches sericeous-villose, becoming glabrous and yellowish brown or purple; leaves orbicular or obovate, both ends obtuse or rounded, the larger one elliptic to obovate-elliptic, dark green above, pale or glaucous beneath, margin remotely glandular-crenate-serrate, 10—17 mm long, 7—13 mm broad, the larger ones to 2,5 cm long, 15—17 mm broad; petioles 4—6 mm long, glabrous; staminate catkins elliptic-ovate about 10 mm long; bracts oblong, 2/3 as long as the glabrous filament; glands 2, the ventral one cylindrical, much longer than the dorsal one; pistillate catkins 15—20 mm long, 9 mm thick, densely flowered, rachis villose; ovary sessile villose ovate oblong, style slender at apex bifid into 2 linear 2-parted stigma; bracts yellowish brown ovate elliptic, truncate at apex, villose at base, 2/3 to 3/4 as long as ovary. — Pl. IX. fig. 17. Wilson no. 4515 (type).

Szechuan: Southwest of Ta chien lu, 4000 m, Wilson 4515 (type! ♀ in Herb. Arn. Arbor.). — Yunnan: moist mountain meadows and on humus-covered boulders on the eastern flank of the Tali Range, Forrest 4603 ♂, August 1906.

33. **Salix flabellaris** Andersson in Jour. Linn. Soc. IV (1860) 54. — Hooker f., Fl. Brit. Ind. V (1888) 634. — Schneider in Sargent, Pl. Wils. III (1916) 142. — *Salix obovata* Wallich cat. no. 3698 (1828). — *Salix lucida* Herb. Jacquemont no. 1160 ex Andersson in Svensk. Vetensk. Akad. Handl. 1580, 497 (1851). — *Salix rotundifolia* Herb. Royle ex Andersson, l. c. (1851).

Dwarf erect shrub; branches glabrous blackish brown; leaves spathulate-ovate, both sides glabrous, light green beneath, margin crenate denticulate, 10—17 mm long, 6—12 mm broad, ovate at apex, broad cuneate at base, petioles about 1/3 as long as the leaves; staminate catkins terminal at branches, about 12 mm long, bracts oblong glabrous 2/3 as long as the glabrous filaments, ventral gland brown cylindrical; pistillate catkins in fruits to 4 cm long, bracts glabrous oblong, ventral gland elliptic truncate at apex; ovary glabrous short pedicelled, style short with a capitate stigma; capsule glabrous with persistent bracts.

West-Himalaya, Hoffmeister and Parker; the same locality, Schlagintweit 10007.

Kashmir, Jacquemont (type of *S. flabellaris* ex Andersson); Kumaon, Wallich 3698 (co-type! of *S. obovate* Wallich) distributed also in Sikkim and Bharmaor.

34. **Salix resectoides** Handel-Mazzetti, Symbolae Sinicae VII (1929) 80. taf. I. Abb. 3 and 4.

Spreading shrub 30—50 cm long; branches pubescent when young, becoming glabrous; buds broad ovoid 3 mm long glabrous; leaves broad obovate to suborbicular-elliptic, 1,5—4 cm long, rounded or obtuse at apex, broad cuneat at base, entire or remotely denticulate, petioles short about 5 mm long, stipules ovate acute leaflike, scarcely denticulate, glabrous; pistillate catkins terminal at short branches, 2—3 rarely to 4 cm long, 3—4 mm thick, rachis pubescent; bracts broad obovate, broad rounded or subtruncate, glabrous or slightly ciliate, 2/3 as long as the whole ovary including stigma; the ventral more or less lobed, the dorsal very small or wanting; ovary sessile glabrous; capsule about 5 mm long. — Pl. IX. fig. 18. — Handel-Mazzetti no. 9722 (type).

Yunnan: Mekong, alt. 4150—4300 m, Handel-Mazzetti 8942 (type! ♀ in Herb. Wien, Herb. Berlin); the same locality, alt. 3750—4225 m, Handel-Mazzetti 9722 (type! ♀ in Herb. Wien).

35. **Salix microphyta** Franchet in Nouv. Arch. Mus. Paris, sér. 2. X (pl. David. 121) (1887) 83. — Burkill in Jour. Linn. Soc. XXVI (1899) 531. — Léveillé in Bull. Bot. France LVI (1909) 299. — Schneider in Sargent, Pl. Wils. III (1916) 62.

Small shrub only 10—30 cm tall; branches villose or nearly glabrous, blackish when young; leaves obovate to spathulate, ends acute or subrounded, papyraceous in texture, both sides glabrous, margin crenate-denticulate, 1—1,5 cm long, 8—13 mm broad, the larger ones 2—2,7 cm long, 12—17 mm broad; petioles glabrous sparsely pilose above, 3—4—9 mm long; catkins elongated, 2 cm long, about 5 mm thick, rachis pilose; stamens 2, filaments villous below the middle, 2 times as long as bract, anthers small ovate globose; ventral

gland ovate 1/3 as long as bracts; bracts dark brown, obovate, concave, subtruncate at apex, glabrous; ovary sessile or nearly so, ovate-oblong, glabrous; style short with bifid stigma, gland ovate-oblong, 1/2 as long as ovary; bracts ciliate nearly as long as the ovary; capsule 5 mm long at maturity.

Szechuan: Mupin, on the slope of high mountains, A. David (type! ♀ in Mus. Paris), June 1869; Wa shan, on rocks, alt. 2300—3000 m, Wilson 2141; the same locality, Wilson 4513; west of Kuan hsien, 2300—3700 m, Wilson 2142, 2142 A.

36. **Salix annulifera** Marquand et Airy-Shaw in Jour. Linn. Soc. XLVIII (1929) 222.

Dwarf undershrub only to 30 cm high; branches lustrously glabrous; leaves spathulately broad ovate, 3—4 cm long, 25—35 mm broad, dark green and glabrous above, white glaucous beneath, here and there sparingly several long hairs, with crenuate-denticulate margin; petioles glabrous 6—15 mm long, about 1/3 as long as the leaf; staminate catkins terminal at short branches, about 3 cm long; bracts spathulate-ovate, ovate or subtruncate at apex, both sides more or less hairy, filaments wholly hairy 3 times as long as the bract, ventral gland cylindrical black and glabrous, rachis villous; pistillate catkins also on the terminal of short branches, bracts like those of the male one, ovary sessile densely pilose without distinct style but with 2 slender and reflexed stigma; capsule pubescent about 4,5 mm long. — Pl. X. fig. 19. — Kingdon Ward no. 5870 (type).

Tibet: On steep rocking cliffs and slopes between Rhododendron species, Do shong la, 3600—3900 m, F. Kingdon Ward 5870 (type! ♂♀ in Herb. Kew.).

37. **Salix Faxoniana** Schneider in Bot. Gaz. LXIV (1917) 143 fig. H. 1—5. — Handel-Mazzetti Symbolae Sinicae VII (1929) 82. — *Salix opsimantha* Schneider in Sargent, Pl. Wils. III (1916) 63. — Pax et Hoffmann in Fedde, Rep. Beih. XII (1922) 353.

Small shrub with prostrate branches, 20—30 cm tall; branches glabrous not sericeous as Schneider described, yellowish brown in colour becoming blackish; buds elliptic-oblong, subacute about 5 mm long, glabrous; leaves obovate-elliptic to elliptic-oblong, the small one usually ovate-elliptic, rounded or obtuse at apex, broad cuneate or rounded at base, 15—35 mm long, 10—25 mm broad, both sides glabrous, lower surface light green or slightly glaucous, margin crenate denticulate; petioles very elongated, 1/3 to 1/2 as long as the leaf, about 8—13 mm long; staminate catkins terminal at short branches, elliptic-oblong in outline, 2,5 cm long, 10 mm thick; bracts hairy on both sides, filaments 2 nearly glabrous about 2 times as long as the oblong obtuse bracts; ventral gland cylindrical 1/3 as long as bracts, blackish spreading out of the bracts; pistillate catkins in fruits to 5 cm long, 10 mm thick, rachis nearly glabrous; bracts oblong obtuse 1/2 as long as ovary, slightly villous toward the base, glabrous above, more or less ciliate, usually hairy within; ovary subsessile glabrous or hairy only at the base; style distinct 1/3 as long as ovary, deeply divided, stigma elongated bifid at

apex; ventral gland oblong, 2 times as long as the pedicel; capsule about 8 mm long, attenuate at apex, glabrous. — Pl. X. fig. 20. — Schneider no. 2375 (type).

Yunnan: Chung tien, 3400 m, Schneider 2375 (type! ♀ in Herb. Berlin), August 1914; Likiang, 4000 m, Schneider 2319 (type! ♀ in Herb. Berlin), August 1914; Yangtze watershed, district of Likiang, eastern slope of Likiang Snow Range, J. F. Rock 4473, May-October 1922; Mekong Salwin, Forrest 16640, July 1918. — Szechuan: southeast of Ta chien lu, thickets, alt. 3700 m, Wilson 2139! 2139 A! (type! of *Salix opsimantha* Schneider); without locality, Wilson 4519, 4519A; Ta chien lu, Sheto, Bachländer, 3800 m, Limpricht 1695; by streams of the mountains, east of Yungning, alt. 10000—11000 ft., Forrest 20494; Muli, along the river, Forrest 20420, July 1921.

38. **Salix coggygria** Handel-Mazzetti, Symbolae Sinicae VII (1929) 79. taf. I. Abb. 5 and 6.

Spreading shrub to 50 cm tall; branches tomentose; buds 7 mm long, pilose; leaves suborbicular to obovate, 1,5—4,5 cm long, rounded or obtuse at apex, margin entire or slightly denticulate toward apex, upper surface green sparsely pilose, lower surface glaucous silky when young becoming glabrous; petiole 2—5 mm long, more or less hairy; stipule 2 mm long more or less denticulate; staminate catkins at terminal of short branches, rachis villous, stamens 2 pilose below the middle; bracts ovate or truncate both sides villous, ½ as long as the filament; ventral gland cylindrical ½ as long as bracts, the dorsal gland somewhat smaller; pistillate catkins terminal at branchlets, 3—4 cm long, about 5 mm thick, rachis villous, ovary densely long hairy sessile with long style and long stigma; bracts ovate or truncate, both sides pilose; ventral gland cylindrical. — Pl. XI. fig. 21. — Handel-Mazzetti no. 9295 (type).

Yunnan: Mekong and Salwin, 3900—4225 m, Handel-Mazzetti 8944 (type! ♂ in Herb. Wien), June 17, 1916; Salwin and Irrawadi, alt. 3500—3950 m, Handel-Mazzetti 9295 (type! ♂ ♀ in Herb. Wien), July 4, 1916.

39. **Salix floccosa** Burkill in Jour. Lin. Soc. XXVI (1899) 529. — Léveillé in Bull. Bot. France LVI (1909) 299. — Diels in Not. Bot. Gard. Edinb. VII (1912) 119. — Schneider in Sargent, Pl. Wils. III (1916) 148.

Small erect shrub with twisted and nearly blackish branches; leaves obovate or obovate-elliptic, 2—4 cm long, 15—20 mm broad, glabrous above, sericeous or glabrous beneath, entire or slightly serrate, obtuse or rounded at apex, obtuse at base, lateral nerves prominent; petioles 4—8 mm long; catkins flowering at the same time, terminal at 3—4 leafy branchlets; staminate catkins about 2,5 cm long, bracts obovate long pilose ½ as long as filament; stamens 2 hirsute at base with 2 glands; pistillate catkins longer than the staminate, bracts truncate as long as the ovary glabrous without sparingly hairy within, ovary sessile long pilose, style longer than the bract; capsule 4—5 mm long at maturity. — Pl. XI. fig. 22. — Delavay no. 4323 (type).

Yunnan: Maeulchan, and rocks of Lao lung tung, alt. 11000 ft., also by Likiang, alt. 12500 ft., always on a calcareous formation, Delavay 2200, 3105, 4323, 4678 (type! ♂ ♀ in Herb. Kew, Mus. Paris).

Sect. 9. **Berberifoliae** Schneider in Sargent, Pl. Wils. III (1916) 141.

Lower shrubs with quite thick and prostrate branches; leaves like those species of section *Myrsinites*, both sides green and reticulate, margin unequally inciso-serrate or crenate-serrate; catkins densely flowered, quite thick; stamens 2, with 2 glands, the dorsal one often small, anthers yellow becoming blackish; female flowers only on ventral gland or occasionally with a very small dorsal gland, ovary glabrous, long pedicelled; style short, stigma 2-parted and oblong.

40. **Salix berberifolia** Pallas Fl. Ross. I. pars. II. 84. t. 82 (1788). — Forbes, Salic. Woburn 276, fig. 140 (1829). — Ledebour, Icon. Pl. Ross. V. 15, t. 449. fig. g—k (1834). — Trautvetter in Ledebour, Fl. Ross. III (1850) 621. — Turczaninow Fl. Baical.-Dahur. III. fasc. I. 119 (1856). — Schneider in Sargent, Pl. Wils. III (1916) 141.

Small prostrate shrub with yellowish brown bark; branches subarticulate and scabrous, more or less twisted; leaves ovate with reticulate nerves sessile, margin serrate-dentate, 1—1,5 cm long, about 8 mm broad, attenuate at base, rounded at apex; the teeth along the margin remotely spreading, usually unequal, linear lanceolate, to 5 mm long; staminate catkins short and thick, about 12 mm long, in fruits to 15 mm long, bracts villous, stamens 2 (3 ex Pallas); pistillate catkins shorter; ovary 2-valved, carpel reflexed during maturity; seeds with long white hairs; the pistillate catkins and the long hairs of seeds forming a white cotton ball in the green leaves.

Altai: without precise locality, P. Krylov.

Distribution: Dahuria to Kamtschatika.

41. **Salix Brayi** Ledebour, Fl. Alt. IV (1833) 289 et Icon. Pl. Fl. Ross. V. 15, t. 449 (excl. fig. g—k) (1834). — Trautvetter in Ledebour, Fl. Ross. III. (1850) 621. — *Salix berberifolia* var. *Brayi* Trautvetter ex Herder in Act. Hort. Petrop. XI (1891) 445. — Schneider in Sargent, Pl. Wils. III (1916) 141.

Prostrate shrub to 15 cm tall quite similar to *S. berberifolia* Pallas; branches quite glabrous; leaves spathulate-ovate or elliptic-obovate, both sides glabrous, margin minutely serrate; staminate catkins nearly the same as by *S. berberifolia*, filaments glabrous, glands 2, the ventral one slightly longer; pistillate catkins elongated up to 1,5 cm long, ventral gland cylindrical ½ as long as pedicel; ovary glabrous with slender style and stigma, bracts nearly glabrous or nearly so; this species is closely related to *S. berberifolia* Pallas but differs in the follwing characters: pistillate catkins elongated to 15 mm long, bracts scarcely pilose or glabrous and the teeth along the margin of leaves not so great as by *S. berberifolia*.

Altai: Tschuja, A. Bunge (type! ♂ ♀ in Herb. Petrop., Herb. Berlin); the same locality, P. Krylov, July 4, 1901.

Distribution: Korea and Kamtschatka.

Sect. 10. **Magnificae** Schneider in Sargent, Pl. Wils. III (1916) 113.

Tall shrubs with elongated branches; leaves maximus, papyraceous, broad elliptic, obovate obtuse, glaucous or whitish beneath, lateral nerves slightly elevated, margin entire or short denticulate, petioles considerably long; catkins at apex of branches, with the normal leaves at the peduncle, 18—30 cm long, 1,5—2 cm thick, stamens 2; glands 2, the ventral broad and thick often emarginate biparted or 3-lobed, the dorsal smaller obovate or sometimes wanting; ovary subsessile glabrous in fruits short pedicelled, style thickened, 2-fid, stigma short or oblong 2-lobed, ventral gland broad ovate obtuse at apex.

42. **Salix magnifica** Hemsley in Kew Bull. Misc. Inform. (1906) 163. — Léveillé in Bull. Bot. France LVI (1909) 299. — Schneider in Sargent, Pl. Wils. III (1916) 44.

A shrub about 2 m tall, glabrous in all parts; branches straight, dark purple in the dried state, and sparingly lenticellate; leaves almost coriaceous at maturity, pale below, those of the sterile branches elliptical or obovate, the largest including the petiole about 22,5 cm long by 15 cm broad, abruptly and obtusely acuminate, rounded or cordate at the base, the slightly curved primary veins 12 to 15 on each side of the midrib; those leaves of flowering branches relatively small crowded obovate or oblong; male catkins shortly pedunculate, 10—12 cm long, horizontal or spreading; stamens 2, glabrous; female catkins 20 cm long, apparently erect; capsule 2-valved, valves recurved; the glands of male flowers well developed and usually forming a 2—3 lobed disk. — Pl. XII. fig. 23. Wilson no. 4526 (type).

Szechuan: Mupin, mountains, alt. 2700—3000 m, Wilson 4526 (type! ♂ ♀ in Herb. Kew); the same locality, Wilson 4363; Wen chuan hsien, Wilson 1401 A; Kuan hsien, 2600—3000 m, Wilson 1401 B.

Salix magnifica var. **apatela** (Schneider) Hao n. nom. — *Salix apatela* Schneider in Sargent, Pl. Wils. III (1916) 46.

Shrub 1,8—3 m tall; branchlets glabrous purplish; buds broad-ovate, obtuse 7—8 mm long; leaves obovate oblong, narrowed toward base, ocute or obtuse at apex, green and glabrous above, palish with elevated yellowish nerves beneath, entire, about 5 cm long, 3 cm broad, the larger ones to 12 cm long, by 5 cm broad; petioles glabrous purplish 9—15 mm long, broadly sulcate above; pistillate catkins densely flowred in fruits about 13—16 cm long, 13 mm thick, with 3—5 normel leaves at the peduncle; capsule ovate-oblong at maturity, subsessile, style biparted, stigma bifid; bracts ovate truncate at apex, yellowish-brown glabrous; gland only one, broad, rightangular about as long as pedicel; male flowers not seen. — Pl. XII. fig. 24. Wilson no. 4575 (type).

Szechuan: Lungan fu, woodlands alt. 2600—3000 m, Wilson 4575 (type! ♀ in Herb. Arn. Arbor.)

43. **Salix poupinensis** Franchet in Nouv. Arch. Mus. Paris, sér. 2. X (Pl. David. II. 120) (1888) 82. — Burkill in Jour. Linn. Soc. XXVI (1899) 531. — Seemen in Bot. Jahrb. XXIX (1900) 277. — Léveillé in Bull. Soc. Bot. France LVI (1909) 300. — Schneider in Sargent, Pl. Wils. III (1916) 46.

Tree twisted to 6 m tall; branches glabrous becoming orange to red-brown; leaves narrow elliptic to oblong, 6—12 cm long, acute or short acuminate, broad-cuneate or rounded at base, sharply glandular-serrate, glabrous above, light green and reticulate beneath, silky on the veins or quite glabrous; petioles 1—1,5 cm long, silky when young becoming glabrous, without gland at apex; stipules wanting, catkins on short leafy branches; staminate catkins 6—9 cm long; pistillate catkins to 14 cm long, loose, with subverticillate flowers; scales yellowish brown, glabrous or nearly so, persistent, rachis sparingly pubescent; ovary glabrous short pedicelled, style about 1/3 as long as the ovary with oblong bifid stigma; capsule glabrous 4—5 mm long with a 1—2 mm long pedicel.

Szechuan: Mupin, in silvis, A. David (type! ♀ in Mus. Paris), march 1869; the same locality, 2000—2300, Wilson 1412, 4370; Ta chien lu, Pratt 335; Wen chuan hsien, woodlands, alt. 2300—3000 m, Wilson 1417; West of Kuan hsien, alt. 3000 m., Wilson 1417 A; Wa shan, 2300—2700 m, Wilson 2126, 4522; the same locality, A. Henry 8891.

This species is easily distingueshed by the serrate acute greenish yellow glabrous and beneath more or less reticulate leaves, by the slender flowering aments and by the small glabrous fruits. The almost verticillate flowers of male catkins are nearly the same as by *S. magnifica* Hemsley.

44. **Salix pella** Schneider in Sargent, Pl. Wils. III (1916) 45.

Shrub 4—6 m tall; branches elongated thick blackish purple glabrous; leaves elliptic or oblong-elliptic, acute or subobtuse at apex, rounded or obtuse at base, green above, distinatly palish beneath, margin glandular-serrate-dentate or crenuate or partly entire, 3,5—8 cm long by 2—2,5 cm broad, the larger ones to 13 cm long, 5,5 cm broad; petioles short 6—15 mm long, glabrous or pilose, purplish or yellowish; pistillate catkins in fruits 4—9 cm long, about 12 mm thick, peduncle 1—2 cm long, rachis sericeous; capsule 5 mm long at maturity, glabrous, short pedicelled, pedicel with one ovate-truncate gland as long as the capsule, style bifid, stigma 2-lobd, bracts glabrous yellowish brown ovate truncate at apex about 1/3 as long as the capsule.

Szechuan: West of Kuan hsien, 2600—3000 m, Wilson 4350 (type! ♀ in Arn. Arbor.).

45. **Salix Fargesii** Burkill in Jour. Linn. Soc. XXVI (1899) 528. Seemen in Bot. Jahrb. XXIX (1900) 277, t. 3, fig. A—F. — Léveillé in Bull. Soc. Bot. France LVI (1909) 299. — Schneider in Sargent, Pl. Wils. III (1916) 47. — Pax in Fedde, Rep. Beih. XII (1922) 353. — *Salix Henryi* Seemen in Herb. Berlin.

Shrub to 3 m tall with glabrous more or less purplish branches; leaves narrow-ovate or subelliptic to 7—15 cm long, 4—6 cm broad, glabrous above, pilose or silky hairy beneath, attenuate or subacute at base, acute rarely obtuse at apex, margin slightly serrulate, petioles 5—18 mm long; small leaves suborbicular densely hirsute beneath; catkins flowering at the same time, erect in a leafy peduncle; staminate catkins 4—6 cm long, rachis densely long hairy, filaments about 5 mm

long glabrous, bracts orbicular pilose and ciliate, leaves at the peduncle with dense silky hairs below; pistillate catkins 7—10 cm long, in fruits up to 20 cm long, rachis nearly glabrous; bracts long hairy along the margin, about as long as the pedicels; ovary linear-lanceolate, short pedicelled, style 2-parted, stigma 2-lobed more or less reflexed; capsule about 4 mm in length.

Szechuan: South Wushan, A. Henry 5678 (type! ♂ of *Salix Henryi* Seemen and also of *Salix Fargesii* Burkill, in Herb. Berlin, Herb. Kew, Mus. Paris, Mus. Brit.); Tchen keou tin, Farges 795 (type! ♀ in Herb. Kew, Herb. Berlin); Jatschou fu, Mao an shan, 3000 m, Limpricht 1592. — Hupeh: Chang yang hsien, Wilson 679; Hsiang shan hsien, thickets, 1600—2300 m, Wilson 720; Chang lo hsien, 600—2000 m, Wilson 2156; Fang hsien, woodlands, Wilson 4439 and 1820.

46. **Salix omeiensis** Schneider in Sargent, Pl. Wils. III (1916) 122.

Tree to 10 m tall; branches glabrous blackish purple; buds purplish ovate-oblong glabrous or sparingly pilose; leaves broad ovate or obovate, rounded at base, acute at apex, green and glabrous above, palish beneath, nerves reticulate espesially on the lower side, margin remotely glandular-serrate or entire, 3—6 cm long, 18—35 mm broad, the larger ones to 11 cm long, 53 mm broad; petioles 7—15 mm long glabrous; staminate catkins in fruits 10—12,5 cm long, 11 mm thick, with 1—2 normal leaves at the peduncle, peduncle 1—1,5 cm long pilose, rachis villous; capsule short pedicelled ovate-oblong narrow at apex, 3—3,5 mm long, glabrous; bracts ovate subacute brown in colour, sericeous without, glabrous within, 2—3 times as long as the pedicels; gland thick, breadth longer than the length, ½ as long as pedicels or subequal, oblong. — Pl. XIII. fig. 25. Wilson no. 5193 (type).

Szechuan: Mt. Omei, Veith Exped. Wilson 5193 (type! ♀ in Arn. Arbor.), May 1904.

47. **Salix kansuensis** Hao n. sp.

Tree to 6 m tall; branches glabrous blackish purple; buds elliptic-oblong glabrous having a same colour as the branches; leaves ovate to elliptic, rounded or cordate at base, ovate at apex, margin serrate, abruptly broader above the middle, 7—10 cm long by 4,5—7 cm broad, glabrous green above, light green and hairy along the nerves beneath; petioles pilose or becoming glabrous, 1—1,5 cm long, quite sulcate above; staminate catkins slender up to 12 cm long (in fruits), about 10 mm thick, rachis glabrous; ovary short pedicelled, glabrous, ovate-orbicular, without distinct style; stigma 2, bifid at apex; ventral gland ovate-elliptic brown in colour, ½ as long as the short pedicel; bracts elliptic, both surfaces sparingly pilose, ovate at apex, narrowed at the base, slightly longer than the pedicel. — Pl. XIII. fig. 26. Hao no. 462 (type).

Kansu: Wu tu hsien, Lan shan, alt. 2500 m, K. S. Hao 462 (type ♀ in Herb. Peiping), June 19, 1930. — Shensi: Ning shan hsien, 2000 m, upper part of the mountain, H. W. Kung 3224 (type ♀ in Herb. Peiping), July 25, 1933.

Sect. 11. **Allochroae** Hao n. Sect.

Species of this section differ from those of section *Magnificae* in the tomentose ovary.

48. **Salix amphibola** Schneider in Sargent, Pl. Wils. III (1916) 60.

Shrub 1,5 m tall; branches sericeous-villous when young becoming purplish and glabrous; leaves ovate-elliptic or broad-elliptic, rounded at base, acute to subrounded at apex, dark green and glabrous above except the middle nerves which are yellow and puberulous, lower surface glabrous, margin entire, 2,5—4 cm long, 15—20 mm broad, the larger ones to 5 cm long, 33 mm broad; petioles 5—11 mm long, villous; pistillate catkins slender 3,5 cm long, 5 mm thick, with a villous peduncle, terminal at 3—4 leafy branches, densely flowered, rachis villous; ovary sessile ovate elliptic villous or tomentose, glabrous toward apex, style short with bifid and reflexed stigma, ventral gland ovate-oblong 1/2 as long as ovary; bracts broad ovate obtuse, both sides glabrous, ciliate. — Pl. XIV. fig. 27. Wilson no. 2124 (type).

Szechuan: Chin ting shan, Wilson 2124 (type! ♀ in Arn. Arbor.).

49. **Salix argyrophegga** Schneider in Sargent, Pl. Wils. III (1916) 49.

Shrub 1,5—3,6 m tall; branches crispate-villous becoming glabrous and yellowish brown; leaves elliptic, ovate-elliptic or elliptic-oblong, rounded at base, short acute or obtuse at apex, green glabrous except nerves above, densely sericeous villous beneath, margin distinctly serrate 5—8 cm long, 3,2—3,8 cm broad, the larger ones to 13 cm long and 5,2 cm broad; petioles 10—15 mm long, sericeous-villous; stipules ovate or semiovate, acute about 1/3 as long as the petioles, pilose, glandular-serrate at apex; pistillate catkins 9—14 cm long, 15 mm thick, terminal on 3—4 leafy branches, rachis sericeous-villous; ovary ovate-elliptic, silvery villous, style bifid slightly longer the oblong 2-lobed stigma; bracts broad ovate, brownish, pilose without, 1/2 as long as ovary, ventral gland oblong 1/2 as long as the bracts; capsule about 6 mm long, subsessile attenuate at apex usually villous; male flowers not known. — Pl. XIV. fig. 28. Wilson no. 2154 (type).

Szechuan: West of Kuan hsien, alt. 2600—3000 m, Wilson 2154 (type! ♀ in Arn. Arbor.).

50. **Salix ulotricha** Schneider in Sargent, Pl. Wils. III (1916) 44.

This species is much like *S. magnifica* Hemsley but differs in the following characters: ovary ovate orbicular, subsessile much thicker, crispate-tomentose, abruptly narrowed into a style, stigma slender distinctly revolute, bracts more broader 1/2 as long as the ovary.

Szechuan: Mupin, thickets, alt. 2300—3000 m, Wilson 1401 d (type ex Schneider).

51. **Salix allochroa** Schneider in Sargent, Pl. Wils. III (1916) 72.

Shrub 1,2—3 m tall; branches sericeous becoming reddish-brown and glabrous; buds ovate oblong, about 8 mm long; leaves broad-elliptic or obovate-elliptic, both ends rounded or obtuse, thick in texture, glabrous above, 3—6 cm long, 2,5—4 cm broad, the larger ones to 8 cm long; petioles 12—15 mm long, glandular; pistillate

catkins cylindrical 9—11 cm long, densely flowered, about 13 mm thick, with 3—4 normal leaves at the peduncle-base, rachis villous; ovary villous ovate short pedicelled, style short with 2 bifid stigma, ventral gland broad orbicular as long as the short pedicel; bracts ovate obtuse at apex, ½ as long as ovary, sparingly villous without, glabrous toward the apex; capsule villous ovate-oblong, about 5 mm long. — Pl. XV. fig. 29. Wilson no. 1410 (type).

Szechuan: Mupin, thickets, alt. 2300—2600 m, Wilson 1410 (type! ♂ in Arn. Arbor.), June 1908.

Sect. 12. **Tetradeniae** Hao n. sect.

Leaves linear-lanceolate or lanceolate, margin entire or serrate, silky or hairy rarely glabrous beneath; catkins slender sessile 2—6 cm long, 3—6 mm thick; male flower with 2 or 4 glands, bracts orbicular both sides glabrous, filaments pilose below the middle; ovary sessile glabrous.

52. **Salix tenella** Schneider in Bot. Gaz. LXIV (1917) 137. fig. A 1—6. — Handel-Mazzetti Symbolae Sinicae VII (1929) 68. — *Salix tenella* var. *trichadenia* Handel-Mazzetti, Symbolae Sinicae VII (1929) 68, Abb. I, 1 et 4. — *Salix longiflora* var. *psilolepis* Handel-Mazzetti, Symbolae Sinicae VII (1929) 83.

Small shrub; branches purplish glabrous; leaves narrow elliptic-lanceolate, obtuse at apex, subrounded at base, 1—1,5 cm long, 2—4 mm broad, green above, glaucous beneath, margin entire, petioles 1—2 mm long yellowish tomentose; staminate catkins sessile densely flowered, 2—3,5 cm long, about 6 mm thick, filaments pilose below the middle, bracts glabrous without orbicular about ½ to ⅔ as long as filament; pistillate catkins slender cylindrical to 2,5 cm long, 3—4 mm thick; peduncle with 3—6 small normal leaves; bracts ovate-elliptic nearly as long as the ovary, rounded at apex, loosely pilose near the base or glabrous; ovary glabrous sessile, style quite short, stigma 2 bilobed; ventral gland slightly longer than the dorsal one, similar each other, 2-parted. — Pl. XV. fig. 30. — Schneider 1304 (type).

Szechuan: Yen yüan hsien, 3600 m, Schneider 1304 (type! ♀ in Herb. Berlin, Herb. Arn. Arbor.). — Yunnan: eastern slopes of Likiang Snow Range, Yangtze watershed, J. F. Rock 8312; the same locality, Rock 8184; district of Likiang, Rock 3451; Likiang Snow Range, Yangtze watershed, Rock 8371 (type! of *S. longiflora* var. *psilolepis* Handel-Mazzetti); Berge westlich von Te chang, Schneider 742 (type! of var. *psilolepis* Handel-Mazzetti); the same locality, Schneider 762, 737.

53. **Salix tetradenia** Handel-Mazzetti, Symbolae Sinicae VII (1929) 70, Abb. 1, Nr. 3 et Taf. I. Abb. 16 and 17. — *Salix etosia* Schneider in Sargent, Pl. Wils. III (1916) 73. — *Salix Camusi* Léveillé in Bull. Bot. France LVI (1909) 297.

Erect shrub up to 1 m tall with tomentose branches; buds ovoid about 4 mm long; leaves elliptic 10—40 mm long, bots ends obtuse or rounded, margin revolute denticulate, glabrous or sparingly pilose

above, silky or glaucous-pruinose beneath, petioles 2—4 mm long densely white tomentose; staminate catkins 2—6 cm long, 3—4 mm thick, rachis hirsute tomentose, stamens 2, filaments pilose 2 times as long as bracts, bracts obovate-spathulate glabrous without; glands 4, ventral and dorsal; pistillate catkins villous, ovary glabrous, style ½ as long as ovary, stigma very short; bracts ovate retuse at apex, both sides glabrous, ½ as long as the ovary, ventral gland ovoid ½ as long as the bracts; capsule about 3 mm long. — Pl. XVI. fig. 31. — Handel-Mazzetti no. 11276 (type).

Hupeh: Patung, alt. 1300—2000 m, side of streams, Wilson 2112 (type! of *Salix etosia* Schneider). — Yunnan: Yunnan fu, 2000—2200 m, Handel-Mazzetti 6102 (type! ♀ in Herb. Wien); Daschao, near Yunnan fu, alt. 2600 m, Handel-Mazzetti 13070 (type! in Herb. Wien); the same locality, montibus supra vicum Daschao, Handel-Mazzetti 11276 (type! ♂ in Herb. Wien); Fumin, Handel-Mazzetti 6102, 13076. — Kweichow: environs de Kouyyang, Bodinier 2134 (type! ♀ of *Salix camusi* Léveillé).

Wilson no. 2112 consists of 2 pistillate branches one of which is *Salix Wallichiana* and the other one is *Salix tetradenia*. Bodinier's type specimen consists of also two branches, the pistillate and the staminate. The pistillate branch is no doubt related to this species *S. tetradenia* while the staminate branch should put to *S. dodecandra* Léveillé.

54. **Salix guebrianthiana** Schneider in Bot. Gaz. LXIV (1917) 139. fig. c. 1—5. — *Salix radinostachya* Schneider in Sargent, Pl. Wilson. III (1916) 116. — Handel-Mazzetti, Symbolae VII (1929) 73.

Erect shrub up to 6 m tall; branches glabrous reddish black or dark brown; buds yellowish red, oblong, glabrous about 7 mm long; leaves ovate-oblong or broad lanceolate, subacuminate at apex, cuneate or rounded at base, 3—5 cm long, 1—1,5 cm broad, scarcely hairy above, densely villous beneath, margin entire or slightly glandular-serrate toward apex, mature leaves not known; petioles about 5 mm long loosely pilose; staminate catkins narrow cylindrical sessile, not pedunculate as Schneider described (pedunculo ad 1 cm longo), to 6 cm long, 6 mm thick, 3—4 normal leaves at its base, rachis loosely villous; bracts slightly brown, obovate orbicular, truncate or somewhat crenulate at apex, saccate at base, glabrous; filaments 2, about 2 mm long, 2 times as long as bracts, long hairy at base; glands 2, orbicular, the ventral one slightly longer. — Pl. XVI. fig. 32. Schneider no. 1488 (type).

Szechuan: Yen yuan hsien, Schneider 1488 (type! ♂ in Herb. Berlin), June 11, 1914. — Sikkim: Reg. temp. alt. 9000 ped. J. D. Hooker (type! ♀ of *Salix radinostachya* Schneider in Herb. Kew, Herb. Berlin).

Sect. 13. **Fragiles** Koch, De Salic. Europ Commant. 13 (1828). — Seemen in Ascher et Graebner, Syn. Mitteleu. Fl. IV. 70 (1909). — Schneider in Sargent, Pl. Wils. III (1916) 107.

Trees; branches elongated and slender more or less pendulous; leaves lanceolate acuminate and serrate; petioles often glandular;

catkins producing at the same time 1—2 cm long; with 3—4 small leaves at the base, loosely flowered; male flower with 2 glands, filaments 2; female flower usuall only with ventral gland present; bracts acute at apex, yellowish or yellowish brown, deciduous; ovary short pedicelled or sessile, glabrous, style short, stigma ovate or narrow.

55. **Salix dolichostyla** Seemen in Englers Bot. Jahrb. XXX, 1902, Beibl. 67 (1901) 39 et Salic. Jap. (1903) 26, Taf. II. A—D. — Schneider in Sargent, Pl. Wils. III (1916) 109. — *Salix eriocarpa* Franchet et Savatier, Enum. Pl. Jap. I. 459 (1875). — *Salix mixta* Korsh. Pl. Amur. in Act. Hort. Petrop. XII. 391 (1892).

Branches pubescent when young becoming glabrous; leaves lanceolate to oblong-lanceolate, both ends acute, margin serrate, those leaves at catkin-base hairy on both sides; staminate catkins about 2,5 cm long, 5 mm thick, densely flowered; bracts ½ as long as filaments, ovate elliptic, stamens 2 pilose at base; glands 2, the dorsal ovate and the ventral cylindrical; pistillate catkins about 2 cm long, bracts ovate, pilose near the base, some what as long as the ovary, ovary pilose or silky, ovate; style short with long reflexed stigma, with an orbicular ventral gland.

Manchuria: Ussuri, Siuzev 24, June 27, 1905; the same locality, Bectels 17, May 5, 1905.

Distribution: Japan, Faurie 1259, 1260 (type! ♂ ♀ in Herb. Berlin), 256, 4258, 4259, 4846, 5352, 5762, 6602 etc.

56. **Salix babylonica** Linnaeus Spec. 1017 (1753). — Andersson Monog. Salic. 50 (1867) Taf. III. fig. 32. — Wolf in Act. Hort. Petrop. XXI (1903) 192. — Léveillé in Bull. Bot. France LVI (1909) 297. — Schneider in Sargent, Pl. Wils. III (1916) 42. — *Salix alba* Burkill in Jour. Ar. Arbor. IV (1923) 526. — *Salix heteromera* Handel-Mazzetti, Symbolae Sinicae VII. 61 (1929) Taf. I. Abb. 1 et 2. — *Salix heteromera* var. *villosior* Handel-Mazzetti, Symbolae Sinicae VII. 62 (1929). — *Salix Cavaleriei* × *babylonica* Handel-Mazzetti, Symbolae Sinicae VII. 61 (1929).

A tall tree; branches slender glabrous lustrous usually pendulous, brown or purplish rarely greenish; leaves linear-lanceolate, cuneate or attenuate at base, long acuminate at apex, margin serrate, both sides glabrous, green above, whitish beneath; petioles 6—12 mm long, pubescent or glabrous, without glands at apex; stipules present only on the young shoots; staminate catkins 1,5—2 cm long, terminal at short branches which possess 3—4 small entire leaves, rachis pubescent; bracts linear-lanceolate, glabrous without, ciliate along the margin, about 2,5 mm long; stamens 2, filaments nearly as long as bracts or slightly longer, more or less pilose at base; pistillate catkins somewhat longer than the male one, rachis puberulous, bracts glabrous, stigma distinctly 2-lobed, ovary glabrous sessile.

Yunnan: Tong tchouan, R. P. Maire 6668, 6413; Bord de la rivière de J tche ho, E. E. Maire 194; Likiang, Schneider 3413; bord des eaux Tong tchouan, Maire 6424; Likiang, J. F. Rock 8171 (type! of var. *villosior* Handel-Mazzetti); near Ssiao ma kai, Schneider 253 (type! of var. *villosior* Handel-Mazzetti); Yunnan fu, Handel-Mazetti

13061 (type! ♂ ♀ of *S. heteromera* Handel-Mazzetti), the same locality, Handel-Mazzetti 161, 1219, 3208, Ducloux 656, 569; Mekong-Salwin divide, Forrest 16200. — Szechuan: near Techang, Schneider 787, 997. — Kansu: Sining fu, Filchner 16. — Honan: Ta sche ho, J. Hers 995. — Hopeh: Chengting, Hao 3085, 3125. — Hupeh: U tau tcian, Silvestri 3399, 3402; without precise locality, Wilson 415, 2122, 2122A, 1435, 1435A, Henry 1328, 3355, 6325. — Chekiang: Ning po, Macgregor; without locality, Barchet. — Kiangsu: Shanghai, W. W. Perrey; Nanking, Niederlein, K. Ling 7938, R. C. Ching 5056, 5057, 5072, 5074. — Shensi: near Tung kuan, along the bank of Yellow River, A. Tafel 103, 105, Giraldi 1159, 1709, 5355, 5356. — Manchuria: Siuzev 69, Komarov 467. — Turkestan: A. Regel. — Altai: A. Bunge. — Tibet: A. Tafel 277.

Distribution: abundant in northhemisphere.

This is the common willow of the region bodering The Yangtze River and the Yellow River from its mouth westward about for two thousand kilometers. On the alluvial soil of this region it is most abundant and has been generally cultivated in the vicinity of villages and of hauses or along the road. The habit is variable and all forms are met with from the typical form with pendulous slender branchlets and arching branches to another form in which the branches are quite ascending and spreading.

57. **Salix Matsudana** Koidzumi in Tokyo Bot. Mag. XXIX 312 (1915). — Schneider in Sargent, Pl. Wils. III (1916) 107. — Schneider in Bailey, Gentes Herb. I. 18 (1920). — Hers in Jour. N. China Branch R. As. Soc. LIII (1922) 115. — Rehder in Jour. Ar. Arbor. IV (1923) 139.

Tree 3,5—13 m tall; branches slender erect or spreading, puberulous or glabrous, lustrous or yellowish, becoming brown; leaves narrow lanceolate, rounded to obtuse rarely acute at base, long acuminate at apex, margin distinctly glandular-serrate, quite green above, glabrous or toward base along the margin tomentose, glauscent or whitish beneath, 5—6 cm long, 12—15 mm broad, the larger ones to 8—10 cm long; petioles short 2—8 mm long, pilose along the upper side; stipule lanceolate if present, glandulose serrate; staminate catkins short cylindrical 1—1,5 cm long about 6 mm thick, more or less pedunculate, rachis villous; stamens 2, glands 2 ovate separated, filament pilose at base, anthers oval yellow, bracts ovate obtuse yellowish green more or less pubescent without at the base; pistillate catkins producing at the same time with staminate one, very small, 12 mm long, 4 mm thick, 3—5 leaves on the short peduncle which may be about 5 mm long, rachis villous, ovary sessile oblong glabrous, style wanting or very short, stigma oval sublobed; glands 2, the ventral one ovate-oblong, quite thick, the dorsal one smaller.

Hopeh: Peking and vicinity, numerous collectors as J. F. Jack, W. Purdom, F. N. Meyer, N. H. Cowdry, J. Hers, C. S. Sargent etc.; Tung ling, J. Hers 1596; Hsiao wu tai shan, Kung 225, J. Hers 2189; Peitaiho, Hsia 188; Tientsin, Debeaux, Wilson; Peking, Bretschneider, Bushell. — Shantung: Chefoo, N. H. Cowdry 632;

Muping, Liou 1366. — Mongolia: Wang je fu, Ching 31. — Manchuria: Mukden, Webster 85; Amur, Sargent. — Suiyuan: Kung chu fu, Hsia 2872. — Shensi: Chow tze hsien, Y. Y. Pai 1309; Chung nan shan, Kung 2753; Hsing ping hsien, Pai 1667; Hu hsien, Pai 1291; Wu kung hsien, Pai 1640; Tung kuan, Liou 8077; Hsien yang hsien, Pai 1062; Chung nan shan, Pai 1674; Ning shan hsien, Kung 3221; Chen fan hsien, Pai 254. — Honan: Cheng chow, J. Hers 83; Falin, Lu shih, Hers 850; Kai feng, Hers 31. — Kansu: Lanchow, Unemura 17 (Type ex Koidzumi). — Hunan: Sin 390. Turkestan: Tien shan, F. N. Meyer 54. — Kiangsu: Nanking, Jack, Cowdry; Shanghai, Maingay 318, 377. — Hupeh: Henry 6325; Ichang, Henry 1328, 3355.

f. **pendula** Schneider in Bailey, Gentes Herb. I. 18 (1920).

A handsome weeping tree with distinctly pendulous branches; usually with 3—4 small leaves on the peduncle of catkins.

Peking: cult. in Prince Park, T. N. Liou 1439, 1442, 1437. — Hopeh: I hsien, K. M. Liou 2065. — Shantung: Tsi nan fu, P. Jacot, March 29, 1922.

f. **tortuosa** Vilmor. in Herb. Peiping. — With twisted branches.

Hopeh: Peiping, cult. in Prince Park, T. N. Liou 1434. — Shantung: Chefoo, K. M. Liou 1704.

Sect. 14. **Ernestiae** Hao n. sect.

Leaves tomentose or densely hairy at least so on the lower surface, lanceolate, long acuminate at apex, 8—20 cm long, with long petioles; catkins 7—12 cm long, 10—12 mm thick, terminal at branches; both male and female flower with 2 well developed glands but the dorsal one of female flower sometimes wanting; ovary sessile sericeous or tomentose, style short, stigma slender.

58. **Salix phanera** Schneider in Sargent, Pl. Wils. III (1916) 50.

Tree 7—12 m tall; branches glabrous blachish in dry specimens; leaves ovate-lanceolate, obtuse or rounded at base, short acuminate, dark green above, silky tomentose except along the nerves beneath which are elevated and glabrous, margin short crenate-denticulate, 6—11 cm long, 3,5—4 cm broad, the larger ones to 15—22 cm long by 5,5 cm broad, with 1—2 cm long tomentose petiole; stipules semicordate glandular-denticulate; staminate catkins 10—12 cm long, 10 mm thick, terminal at about 3 cm long and 3-leafy short branches, rachis villous; stamens 2, filaments villous, with yellow ovate-oblong anthers; bracts broad-ovate rounded and with 2—3 glands at apex, yellowish brown, both sides sericeous-villous, about 1/2 as long as filaments; ventral gland oblong, thick, 1/2 as long as the bracts, often incised, the dorsal one shorter, 2-fid. — Pl. XVII. fig. 33. Wilson 2155 (type).

Szechuan: West of Kuan hsien, Pan lan shan, 2300—3000 m, Wilson 2155 (type! ♂ in Ar. Arbor.), June 1908; the same locality, Wilson 4352.

59. **Salix bistyla** Handel-Mazzetti, Symbolae Sinicae VII (1929) 76, Taf. I. Abb. 7 and 8.

Small tree; branches glabrous blackish purple, usually tomentose when young; leaves lanceolate, pilose above, white densely tomentose beneath, acute at both ends, 4—8 cm long, 12—25 mm broad, margin remotely serrate, petioles about 10 mm long densely tomentose; catkins terminal at branches with several normal leaves at the base, 7—10 cm long, about 10 mm thick; male flower with 2 glands, the dorsal one cylindrical and longer; stamens 2, filaments wholly pilose; bracts truncate and incised at apex, $^2/_3$ as long as filaments; female flower with 2 slender style, this style about as long as the ovary usually reflexed at apex; ovary ovoid sessile pilose or tomentose, with one gland at the base. — Pl. XVII. fig. 34. — Handel-Mazzetti no. 9138 (type).

Yunnan: Irrawadi, granit, 2650 m, Handel-Mazzetti 9138 (type! ♂ ♀ in Herb. Wien).

60. **Salix Ernesti** Schneider in Sargent, Pl. Wils. III (1916) 47. — Handel-Mazzetti Symbolae Sinicae VII (1929) 77.

Erect shrub 1,2—6,5 m tall; branchlets purplish, sericeous villous, becoming purplish brown; leaves elliptic or obovate-elliptic to broad-lanceolate, obtuse or acute at base, subobtuse or acute at apex, green above, sericeous-pilose beneath, margin entire or indistinctly undulate glandular-crenate, 3—6 cm long, 1,5—3 cm broad, the larger ones elliptic or obovate lanceolate, 8—10 cm long, 2,2—4 cm broad, petioles 5—10 mm long more or less villous; stipules small semi-orbicular if present, or wanting; staminate catkins 2—6 cm long, 8—10 mm thick, peduncle 5—10 mm long with 2—3 small leaves, rachis sericeous-villous; stamens 2, filaments villous, with ovate-oblong and yellow anthers; bracts elliptic about $^1/_2$ as long as the filament; glands 2, the ventral one ovate or angulate, the dorsal smaller and narrower; pistillate catkins 3—11 cm long, 10 mm thick when in fruits, peduncle villous, 1—2,5 cm long, with 3—4 normal leaves, rachis villous, densely flowered; ovary sessile ovate oblong, pilose, style divided into 2 bilobed stigma; bracts obovate oblong, as long as the ovary, yellowish brown, both sides sericeous-villous; glands 1—2, the ventral broad-ovate to ovate-elongated, truncate or lobed at apex, $^1/_3$ as long as ovary, the dorsal small or wanting; capsule loosely pilose, 6 mm long. — Pl. XVIII. fig. 35. Wilson 2151 (type).

Szechuan: West of Kuan hsien, 3000—3300, Wilson 2151 (type! ♂ ♀ in Herb. Ar. Arbor.); 1406, 2149, 2149 A, 2152, 2153, 2159, 4371, 4521. — Yunnan: between Yunghai and Da wan, Schneider 3512; Jülung shan, alt. 3500 m, Schneider 2913, Sept. 16, 1914.

61. **Salix phaidima** Schneider in Sargent, Pl. Wils. III (1929) 51.

Shrub 1,8—3 m tall with purplish black and pubescent branches; buds ovate purple $^1/_2$ as long as the petiole; leaves lanceolate or ovate-lanceolate, rounded at base, acute or acuminate at apex, dark green sparingly hairy above, silvery pilose beneath, margin crenuate or nearly so, 3—7 cm long, 1,2—2 cm broad, the larger ones 9—15 cm long, petioles 5—12 mm long villous becoming glabrous; stipules small or wanting; staminate catkins 8—10 cm long, 5 mm thick; stamens 2, with pilose filaments and yellow ovate-elongated anthers, bracts yellowish

brown oblong obtuse both sides villous; ventral gland oblong, often bifid, 1/2 as long as bracts, the dorsal one similar to the ventral, sometimes the both glands forming into a 3-4-lobed pseudodisk; pistillate catkins 7—12 cm long, about 8 mm thick, ovary sessile ovate-oblong short villous, style bifid at apex with narrow 2-lobed stigma; bracts as those of the male catkin, only ventral gland present, elongated or filiform, nearly 1/2 as long as ovary. — Pl. XVIII. fig. 36. — Wilson no. 1409 (type).

Szechuan: Mupin, alt. 1700—2300 m, Wilson 1409, 1408 A (type! ♂ ♀ in Arn. Arbor.).

62. **Salix plochotricha** Schneider in Sargent, Pl. Wils. III (1916) 49.

Shrub 3—7 m tall; branches glabrous blackish or purple; leaves oblong-elliptic or obovate-lanceolate, acute rarely obtuse at base, obtuse or short acute at apex, green above, palish tomentose beneath, margin crenuate-serrate or subentire, 4—9,5 cm long, 1,8—2 cm broad, the larger ones to 10 cm long, 3 cm broad; petioles sericeous 5—15 mm long; stipules small or wanting; male and female catkins nearly similar to each other, 5—9 cm long, rachis villous, sitting on a 3—3,5 cm long and 3—4 leafy branches, densely flowered; stamens 2, filaments villous at base, with yellow oval anthers; glands 2, separated, the ventral broad ovate, the dorsal smaller and narrower; bracts ovate obtuse 1/3 as long as filaments, both sides sericeous-villous, brownish; ovary sessile tomentose ovate nearly as long as the purplish style, stigma bifid; capsule not seen. — Pl. XIX. fig. 37. Wilson no. 2147 (type).

Szechuan: West of Kuan hsien, Wilson 2147 (type! ♂ ♀ in Herb. Ar. Arbor.).

63. **Salix Forrestii** Hao n. sp.

Erect shrub; branches short articulate more or less tomentose; leaves oblong-lanceolate, acute at apex, rounded or broad cuneate at base, margin entire, light green pilose especially along the nerves above, glaucous and sparingly hairy beneath, 4—6 cm long, 15—20 mm broad; catkins sessile with 1—3 small margin entire lower side quite silky leaves, 7—8 cm long, 8—11 mm thick, rachis tomentose; bracts orbicular densely hairy without, 1/2 as long as the ovary, only slightly pilose in the middle part within; ventral gland elliptic brown in colour, ovary sessile pilose elliptic-ovoid, style and stigma about equal circa 1 mm in length; capsule densely hairy to 6—7 mm long; male flower not seen. — Pl. XIX. fig. 38. Forrest no. 5718 (type).

Yunnan: without precise locality, Forrest 5718 (type ♀ in Herb. Berlin), collected in 1910.

Sect. 15. **Eriocladae** Hao n. sect.

Erect trees or shrubs; leaves elliptic to lanceolate, during flowering time only 8—20 mm long, sericeous or sericeous tomentose beneath, rarely glabrous, petioles short or nearly wanting; catkins cylindrical densely flowered; male flower with 2 stamens and 2 separated glands; ovary sessile sericeous or tomentose; style 2-parted or 2-lobed, with 2-fid stigma; female flower possessing only ventral gland.

64. **Salix sclerophylla** Andersson in Jour. Linn. Soc. IV (1860) 52. — Andersson Monog. Salic. 148 t. VIII. fig. 82 (1867). — Hooker f., Fl. Brit. Ind. V. (1888) 630. — Schneider in Sargent, Pl. Wilson III. (1916) 112.

Small erect shrub with glabrous branches; leaves ovate-elliptic, entire, both surfaces more or less pubescent; staminate catkins very small only to 8 mm long, 6 mm thick; filaments pilose below, 3 times as long as the bracts; glands 2, more or less lobed; bracts broad, ovate both sides pubescent; pistillate catkins about 1,5 cm long, rachis pubescent; ovary sessile, pubescent, bracts orbicular pilose on both sides; glands 2, similar to that in *S. tenella* Schneider.

Himalaya, 10000—15000 ped., Thomson (type! ♂ in Herb. Kew); Tibet: Laptak, Strachey and Winterbottom (type! ♂ ♀ in Herb. Kew); Gnari Khorsum, Schlagintweit 6632.

This species is much related to *S. tenella* Schneider and *S. atopantha* Schneider. From the former it is easily distinguished by the ovate both sides pubescent leaves and by the pilose ovary, from the later it differs in the orbicular and much shorter bracts.

65. **Salix atopantha** Schneider in Sargent, Pl. Wils. III (1916) 43.

Small erect shrub, 0,6—2,5 m tall; branchlets puberulous or glabrous, purpurascent; winterbuds 6—7 mm long, oblong, glabrous purplish brown; leaves elliptic-oblong, both ends acute or obtuse, green and puberulous except the nerves above, palish glaucous or sparingly puberulous beneath, lateral nerves about 6-paired, margin short glandular-denticulate or subentire, 1 cm long, 4 mm broad, the larger ones to 2,5 cm long and 1 cm broad; catkins flowering at the same time, terminal at the 3—6 small leaved short branchlets; staminate catkins 1—2 cm long, 5—6 mm thick, with peduncle 5—10 mm long; stamens 2, filaments pilose at base, with subglobose and yellow anthers; glands 2, ventral one broader, 2-3-parted or 3-lobed, dorsal one simple small or the both glands forming a 4-parted pseudodisk; bracts spathulate, truncate at apex, about ½ as long as filaments, both sides villous; pistillate catkins 8—20 mm long, 6 mm thick, peduncle 1,5 cm long; ovary sessile ovate sericeous-tomentose, style short deeply 2-parted, stigma 2-lobed; bracts longer than ovary; glands 2 like those of male flower. — Pl. XX. fig. 39. — Wilson no, 2134 (type).

Szechuan: Kuan hsien, Pan lan shan, alt. 3700—4000 m, Wilson 2134 (type! ♂ ♀ in Herb. Arn. Arbor.), 2137, 2137 A, 2134 A.

Var. **glabra** Hao n. var.

This variety differs from its type in the apex ovate and quite glabrous bracts.

Chekiang: Tien mu shan, K. K. Troong 63 (type ♀ in Herb. Peiping), April 1929.

66. **Salix erioclada** Léveillé in Fedde, Rep. III (1906) 22. — Léveillé in Bull. Bot. France LVI (1909) 299 et Fl. Kouy-Tchéou 381 (1915). — Schneider in Sargent, Pl. Wils. III (1916) 118. — Handel-Mazzetti Symbolae Sinicae VII (1929) 64. — *Salix Delavayana* × *Wallichiana* Görz in Herb. Berlin.

Branches densely white villous; leaves dark green and glabrous above, more or less silky beneath at least so when young, ovate-lanceolate to elliptic, convolute, to 5 cm long, 15 mm broad, obtuse or partly rounded at apex, narrow rounded at base, entire, petioles short pilose; staminate catkins subsessile, with 2—3 small linear-lanceolate leaves, narrow cylindrical, often curved, 2,5—6 cm long, 6—7 mm thick, densely flowered; bracts obovate 1/2 as long as filament, filament glabrous but pilose at base; glands 2, the ventral one slightly longer; rachis villous; pistillate catkins 3—6 cm long, bracts elliptic about 2 mm long acute at apex brown in colour usually with dense hairs, ventral gland about 1 mm long ovoid cylindrical, without dorsal gland; ovary to 3 mm long, tomentose; pedicels short as long as the ventral gland, style slender, stigma 2, every stigma indistinctly 2-lobed; capsule 4—6 mm long. — Pl. XX. fig. 40. Esquirol no. 367 (type).

Kweichow: Pia fong, at Sa jang, J. Esquirol 367 (type! ♂♀ in Herb. Edinb.), march 4, 1905. — Yunnan: Plateau de Té ma tchouan, alt. 3000, E. E. Maire 313; Likiang, J. F. Rock 8014, March 1923; eastern slope of Likiang Snow Range, Yangtze watershed, Rock 8185.

67. **Salix psilostigma** Andersson in Svensk. Akad. Handl. 1850, 496 (1851). — Hooker f., Fl. Brit. Ind. V (1888) 633. — Burkill in Jour. Linn. Soc. XXVI (1899) 528. — Léveillé in Bull. Bot. France LVI (1909) 299. — Schneider in Sargent, Pl. Wils. III (1916) 116. — Handel-Mazzetti, Symbolae Sinicae VII (1929) 73. — *Salix eriophylla* Andersson in Jour. Linn. Soc. IV (1860) 48. — Hooker f., Fl. Brit. Ind. V (1888) 633. — Burkill in Jour. Linn. Soc. XXVI (1899) 528.

Erect shrub; branches tomentose becoming glabrous; buds more or less pilose, slightly longer than the petiole; leaves lanceolate entire, nearly glabrous above, silky below, both ends acute; staminate catkins subsessile, with two small leaves at the base, densely flowered, about 2—3,5 cm long, 5 mm thick, filaments 2 pilose below the middle; ventral gland similar to the dorsal, more or less lobed; bracts broad-orbicular, densely long white villous without, nearly glabrous within; pistillate catkins about 4 cm long, rachis villous, ovary pilose sessile, ventral gland brown 1/8 as long as the bract; bracts very similar to those of the male one, about as long as the ovary, style nearly wanting or the stigma directly adnate to the ovary.

Szechuan: Ning yuan, Lololand, Schneider 932. — Hupeh: Chang lo hsien, A. Henry 6274. — Yunnan: open situation by strems in Tali valley, Forrest 4967; Mengtze, 6000 ft., Henry 9338 B, 10209, 10493, 14493 A. — Tibet, J. D. Hooker, Schlagintweit, Thomson, Griffith and others collectors.

Distribution: Sikkim, Bengal, Khasia southward to India.

68. **Salix sericocarpa** Andersson in Jour. Linn. Soc. IV (1860) 43. — Hooker f., Fl. Brit. Ind. V (1888) 637. — Schneider in Sargent, Pl. Wilson. III (1916) 112. — *Salix alba* var. *eriocarpa* Hooker et Thomson in Herb. Berlin.

Branches pubescent becoming glabrous, purple in colour; leaves lanceolate, margin serrate, subsessile, more or less silky, at least so

when young; staminate catkins like *S. babylonica* but the filaments glabrous, the ventral gland and the dorsal gland well developed similar to each other, 1/2 as long as bract; bracts glabrous without, slightly pilose at the base within; pistillate catkins elongated hairy, style considerably long, stigma short usually 2 or 3 in number; bracts elliptic about 1/2 as long as ovary, glabrous without, pilose at base within; ventral gland orbicular very thin possessing the same colour as bracts; capsule sessile pilose to 6 mm long.

Yunnan: west of Tali fu, Mekong watershed, J. F. Rock 6940, September 1922. — Himalaya: Simla, Warburg 778.

Distribution: Kashmir, reg. temp. 600 ped., T. Thomson (type! ♂ ♀ in Herb. Kew.), J. D. Hooker (type! of var. *eriocarpa*), Afghanistan.

69. **Salix jessoensis** Seemen Salic. Jap. 31, t. 3. fig. F—L (1903). — Schneider in Sargent, Pl. Wils. III (1916) 110.

Branches light brown; leaves narrow lanceolate to lanceolate, 7 cm long, 2 cm broad, both ends acute, margin serrate, dark green lustrous above, glaucous more or less hairy beneath, young leaves densely hairy, petioles short only 5 mm long densely pilose becoming glabrous; catkins subsessile producing togather with the leaves; staminate catkins about 4 cm long, 6 mm thick, loosely flowered, rachis hairy, bracts long elliptic retuse at apex 1/2 as long as filaments; filaments 2, free densely pilose below; glands 2, the ventral one longer and narrower; pistillate catkins erect slightly curved to 4,5 cm long, 7 mm thick, densely flowered, rachis densely hairy; bracts elliptic 1/3 as long as the ovary; ovary pilose sessile, style very short or nearly wanting, only ventral gland present 1/2 as long as the bracts. — Pl. XXI. fig. 41. Tokubuchi (type).

Shantung: Chefoo Garden, Warburg 6536.

Distribution: Japan, Issel Jesso Sapporo, Tokubuchi (type! ♂ ♀ in Herb. Berlin).

Sect. 16. **Biondianae** Hao n. sect.

Dwarf erect much branched shrubs; leaves ovate to obovate-elliptic, both ends obtuse, margin entire; catkins short 10—15 mm long, 6—8 mm thick (except *S. phylicifolia* L.); petioles 1/3 to 1/2 as long as the leaves; flowers usually with one ventral gland except the female one of *S. cupularis* Rehder and *S. oritrepha* Schneider; ovary sessile and pilose (in *S. cupularis* ovary glabrous).

70. **Salix cupularis** Rehder in Jour. Arn. Arbor. IV (1923) 140.

Small erect shrub with purple or blackish-purple and glabrous branches; buds large glabrous linear-oblong about 4 mm long; leaves elliptic or obovate-elliptic, 1,5—2,5 cm long, obtuse at apex, broad cuneate or rounded at base, margin entire, obscurely green obove, glauscent beneath, quite glabrous, subchartaceous, with 6—9 pairs of lateral nerves, nerves slightly conspicous beneath; petioles 1/2—1/3 as long as the leaf, yellowish; stipules small suborbicular about 5 mm long; staminate catkins at terminal of short branches, about 10 mm long, 6—8 mm thick, with normal leaves at its peduncle; ovary short

pedicelled, elongated ovate, attenuate at apex, glabrous; style slender about 1 mm long, with 2 narrow bifid stigma, rachis sparingly pilose; bracts ovate or broad obovate, rounded at apex, 1—2 mm long, glabrous without and along the margin, a little hairy within at the base; glands 2, quite variable, connate at base and forming a pseudodisk, the ventral one 2—3 parted, nearly as long as the pedicel, the dorsal oblong slightly shorter; ovary glabrous. — Pl. XXI. fig. 42. Purdom no. 547 (type).

Shensi: Tai pai shan, alt. 3300 m, W. Purdom 547 (type! ♀ in Herb. Arn. Arbor.), in 1910.

Var. **lasiogyne** Rehder in Jour. Ar. Arbor. IV (1923) 141.

Differs from its type in the pilose ovary. — Pl. XXI. fig. 42. Purdom 547 bis (type).

Shensi: Tai pai shan, alt. 3300 m, W. Purdom 547 b (type! mixta cum typo, in Herb. Ar. Arbor.), in 1910.

71. **Salix oritrepha** Schneider in Sargent, Pl. Wils. III (1916) 113.

Small erect shrub with short branches, 0,6—1,2 m tall; branchlets grayish-tomentose when young becoming glabrous; leaves elliptic or ovate, rounded or obtuse at base, obtuse or acute at apex, roughly green more or less pilose above, palish or grayish pilose beneath, nerves prominently reticulate, margin entire, thick in texture, 1 cm long, 8 mm broad, the larger ones to 2,4 cm long and 1,5 cm broad; petioles 5—8 mm long, purplish, pubescent or nearly so; catkins 1—1,5 cm long, 1 cm thick, terminal at short 2-3-leaved branches, peduncle pilose about 3—7 mm long, densely flowered; ovary sessile ovate short attenuate at apex, short crispate-villous, style and narrowly 2-lobed stigma about equal long; bracts broad obovate, about ½ as long as ovary, purplish, nerved, both sides white sericeous; glands 2, irregularly lobed, forming a pseudodisk. — Pl. XXII. fig. 43. Wilson 4525 (type).

Szechuan: Southwest of Ta chien lu, alt. 3600—4000 m, Wilson 4525 (type! ♀ in Herb. Ar. Arbor.), July 1903.

Var. **tibetica** f. **uniglandulosa** Görz in Herb. Berlin. — *Salix chamaehybrida* Görz in Herb. Berlin. — *Salix Lindleyana* var. *Souliei* ×*oritrepha* Görz in Herb. Berlin.

This variety differs from its type in the single at apex not lobed gland and in the short petiolate small leaves.

Yunnan: Bei ma shan, 14,000—15,000 ft., Forrest 13983 (type! ♀ in Herb. Berlin); alpine meadows on the mountains east of Yungning, alt. 13,000 ft., Forrest 21256 (type! of *S. chamaehybrida* Görz).

72. **Salix phylicifolia** Linnaeus Sp. 1016 (1753). — Andersson Monog. Salic. 131. t. 7, fig. 70 (1867). — Burkill in Jour. Linn. Soc. XXVI (1899) 532. — Léveillé in Bull. Bot. France LVI (1909) 300. — Schneider in Sargent, Pl. Wils. III (1916) 123. — Pax et Hoffmann in Fedde, Rep. Beih. XII (1922) 353.

Branches quite glabrous; leaves sparingly white hairy when young, becoming glabrous, ovate to obovate-elliptic, green glabrous above, glaucous beneath, margin mostly entire rarely slightly crenate-

denticulate, about 5 cm long, to 25 mm broad, petioles glabrous 3—5 mm long; staminate catkins sessile, with 2 small lower side silvery hairy leaves, about 15 mm long rarely longer, bracts ovate about 1 mm across, long ciliate, filaments glabrous; pistillate catkins short pedunculate 3—4,5 cm long, bracts like those of male one; ovary densely hairy, sessile, acute at apex, style 2-fid distinctly elongated.

Hopeh: Hsiao wu tai shan, 2300 m, F. N. Meyer 1204; Po hua shan, Bretschneider; Jehol, David 1794; Bo hua schan, 2000 m, Limpricht 2454. — Ninghsia; Ala shan, 1800 m, in valley, 15 m tall, Hsia 3933, August 28, 1933.

Distribution: common in Europe.

73. **Salix amnematchinensis** Hao n. sp.

Erect dwarf shrub; branches glabrous brown in colour; leaves elliptic-ovate, 8—20 mm long, 6—12 mm broad, acute at apex, broad cuneate at base, margin entire, both sides glabrous, light green or glaucous beneath; petioles 2—5 mm long, yellowish and glabrous; catkins headlike, about 10 mm in diameter; bracts orbicular 1/2 as long as the ovary, bot surfaces pilose; ovary pilose sessile, style and stigma indistinct; capsule ovoid about 3,5 mm across. — Pl. XXII. fig. 44 Hao 1039 (type).

Kokonor: Amne matchin, 4500 m, Hao 1114 (type ♀ in Herb. Peiping), September 2, 1930; Cheihki gan ba, 4500 m, Hao 1039 (type ♀ in Herb. Peiping), August 27, 1930; Mountain Selgen, 3900 m, Hao 1280, September 13, 1930.

74. **Salix Biondiana** Seemen in Bot. Jahrb. XXXVI. Beibl. LXXXII 32 (1905). — Léveillé in Bull. Bot. France LVI (1909) 297. — Schneider in Sargent, Pl. Wils. III (1916) 118. — Rehder in Jour. Ar. Arbor. IV (1923) 141.

Branches dark brown, lustrous and glabrous; buds reddish brown also glabrous; leaves oblong to obovate, attenuate at base, more or less rounded at apex, to 3 cm long, 17 mm broad, margin quite entire, dark green and glabrous above, light green beneath; petioles up to 10 mm long, glabrous; catkins pedunculate 15 mm long, 5 mm thick, bracts sparcely hairy and ciliate about 1/2 as long as filaments; stamens 2, long hairy at base, much longer than the bracts; ventral gland narrow oblong, 1/4 as long as the bract, dorsal one about 1/3 as long as the bracts; pistillate catkins densely flowered, 2,5 cm long, 10 mm thick, ovary pilose, bracts 1/2 as high as the ovary; ovary densely pilose sessile, capsule more or less villous. — Pl. XXIII. fig. 45 Biondi 5361 (type).

Shensi: Pao ki scen, Miao wang shan, Hugh Scallan no. 5361 also Herb. A. Biondi 5361 (type! ♂ ♀ in Herb. Berlin). — Hupeh: Fang hsien, Wilson 2045 (co-type! ♂ in Herb. Berlin).

Sect. 17. **Tangiae** Hao n. sect.

Shrubs; leaves ovate-oblong, margin entire (except *S. characta* Schneider), both ends obtuse or acute, usually glabrous, petioles short 2—5 mm long; catkins slender, 2—3—4,5 cm long, 4—6—(8) mm thick, terminal at branches, distinctly pedunculate; staminate catkins loosely flowered, similar to the pistillate ones in size; male flower with

one ventral gland (in *S. dissa* Schneider, the dorsal present); ovary glabrous sessile, only ventral gland to be seen.

75. **Salix characta** Schneider in Sargent, Pl. Wils. III (1916) 125. — Rehder in Jour. Arn. Arbor. IV (1923) 142.

Branches puberulous becoming yellowish or reddish brown; buds ovate yellowish red; leaves lanceolate, both ends acute, glabrous, slightly puperulous along the nerves beneath, nerves prominently reticulate, teeth along the margin very distinct, 1,5—3 cm long, 5—9 mm broad, the larger one to 4,5 cm long, 1,2 cm broad; petioles 1—3 mm long; puberulous along the above side; catkins short pedunculate, 2,5 cm long, densely flowered, rachis villous; female flowers pedicelled; ovary oblong, nearly glabrous; style $^2/_3$ as long as the ovary, with short ovate-oblong stigma; bracts ovate acute brown in colour, hairy, 2 times as long as the pedicel; male flower with 2 filaments which are usually glabrous, bracts orbicular acute at apex both sides more or less hairy, only ventral gland to have been seen. — Pl. XXIII. fig. 46. Kung 214 (typical form).

Hopeh: Hsiao wu tai shan, alt. 1700—3000 m, F. N. Meyer 1160 (type! ♀ in Herb. Arn. Arbor.); the same locality, H. W. Kung 214 (typical form! ♀ in Herb. Peiping), June 1, 1930; Hsiao wu tai shan, Kung 218, June 2, 1930; Lei yuan hsien, alt. 1500 m, K. M. Liou 2418, June 13, 1934. — Chakar: Yü hsien, 1650 m, Liou 2397, June 13, 1934; Yü hsien, Tien chih liang, Liou 1940, 2323, June 9, 1934.

76. **Salix melea** Schneider in Sargent, Pl. Wils. III (1916) 176.

Shrub; branches villous when young becoming glabrous; leaves lanceolate or oblong-lanceolate, attenuate at base, short acute or obtuse at apex, obscure green above, sparingly hairy beneath, 3—4 cm long, 5—12 mm broad, petioles short 2—5 mm long; catkins long cylindrical 5,5—7 cm long, about 10 mm thick, rachis villous; ovary subsessile, puberulous, style and pedicel about equal long, stigma entire oblong as long as the style; bracts obovate $^1/_2$—$^2/_3$ as long as the ovary, brown, both sides white sericeous; capsule nearly glabrous, oblong, about 4 mm long. — Pl. XXIV. fig. 47. Purdom (type).

China: without precise locality and date, W. Purdom (type! ♀ in Herb. Arn. Arbor.). — Ninghsia: Ho lon shan, alt. 1750—2650 m, R. C. Ching 1054, July 25, 1923. — Shensi: Tai pai shan, To mu kung, upper slope, shrub, 12 ft. tall, Y. Y. Pai 1521, Oct. 4, 1934.

77. **Salix dissa** Schneider in Sargent, Pl. Wils. III (1916) 52. — Pax et Hoffmann, in Fedde, Rep. Beih. XII (1922) 353.

Shrub 0,6—2,4 m tall, erect; branchis white tomentose when young, becoming glabrous; buds glabrous or sparingly pilose, ovate, acute, 3—3,5 mm long; leaves oblong-elliptic, both ends obtuse, glabrous green except the puberulous yellow nerves above, glaucous beneath, 1—1,5 cm long, 5—6 mm broad, the larger ones to 2,8—3 cm long, 8—10 mm broad; petioles 1—3 mm long, glabrous; catkins on a 5—35 mm long and 3—6 leafy branches; staminate catkins 4—5 cm long, 3—4 mm thick, short pedunculate, rachis villous, stamens 2 with

villous filaments and small yellow subglobose anthers, ventral gland narrow ovate slightly longer than the dorsal one about ½ as long as the broad-ovate bracts; pistillate catkins 3—5 cm long, 6—7 mm thick, peduncle to 3,5 cm long; ovary ovate-oblong, sessile, glabrous, style short with two 2-fid stigma; ripening capsule not known. — Pl. XXIV. 48. Wilson 2145 (type).

Szechuan: west of Kuan hsien, alt. 3300 m, Wilson 2136 (type! ♀ in Herb. Arn. Arbor.), 2136 A, 2160; Wen chuan hsien, Wilson 2145 A, 2145 (type! ♂ ♀ in Herb. Arn. Arbor.); Kia ting fu, 3360 m, Limpricht 1502; Wen chuan hsien, 2400 m, Limpricht 1438. — Kansu: vicinity of Labrang, shrub up to 15 ft. tall, alt. 3000—4000 m, R. C. Ching 791.

78. **Salix macroblasta** Schneider in Sargent, Pl. Wils. III (1916) 58.

Shrub 2—6 m tall; branches short villous when young, then yellowish brown and glabrous; buds oblong, yellowish red, glabrous or nearly so, 2 times as long as the petiole; leaves narrow lanceolate or elliptic lanceolate, rounded or subcordate at base, acute at apex, dark green above, whitish or glaucous beneath, margin entire, 1,4—4 cm long, 5—12 mm broad, the larger ones to 5 cm long, 2 cm broad; petioles short, 1—3 mm long, pilose, sulcate above; catkins pedunculate 2,5—3 cm long, 6 mm thick, peduncle 1,5 cm long pilose with 4 normal leaves, rachis villous, densely flowered; female flowers subsessile, ovary ovate-oblong, glabrous, style very short, with short emarginate stigma; gland one, ovate-oblong, ½ as long as the subglabrous brownish obovate-oblong bracts; capsule oblong about 4 mm long. — Pl. XXV. fig. 49. Wilson 4354 (type).

Szechuan: west of Kuan hsien, alt. 3300 m, Wilson 4354 (type! ♀ in Herb. Arn. Arbor.), 4356; Mupin, alt. 1600—2000 m, Wilson 1402.

79. **Salix vaccinioides** Handel-Mazzett, Symbolae Sinicae VII (1929) 63, Taf. I. Abb. 18.

Erect shrub to 30 cm tall with glabrous and lustrous branches; leaves ovate to orbicular-elliptic, 1—2,5 cm long, both ends obtuse, margin entire and revolute, both sides glabrous, dark green above, glaucous beneath; petioles 2—6 mm long usually glabrous; stipules oblique or broad ovate, about 3 mm long, margin dentate; pistillate catkins erect 2,5—4,5 cm long, 4 mm thick, with 3—5 normal leaves at the base, rachis slender slightly yellowish pilosulate; bracts suborbicular, subtruncate, purplish brown, glabrous; ventral gland cylindrical nearly as long as the bracts; dorsal gland wanting; ovary sessile glabrous, style free with 2 very short stigma. — Pl. XXV. fig. 50. Handel-Mazzetti no. 9225 (type).

Yunnan: nahe der Tibetisch-birmanischen Grenze an der ostseite des Passers Tschiangschel zwischen Salwin und Irrawadi, 3275 m, Handel-Mazzetti 9225 (type! ♀ in Herb. Wien), 3. VII. 1916.

80. **Salix mictotricha** Schneider in Sargent, Pl. Wils. III (1916) 56.

Shrub 4,3—6 m tall; branches villous becoming glabrous and purplish brown, blackish in dry candition; leaves elliptic or broad

elliptic, rounded at base, subacute or subrounded at apex, quite green above, sparingly pilose, glaucous and long pilose beneath, margin entire, 1,5—2 cm long, 9—15 mm broad, the larger ones to 2,6 cm long, and 17 mm broad; petioles sericeous 3—5 mm long slender; staminate catkins subsessile 2 cm long, 4 mm thick, densely flowered, rachis villous; stamens 2, filaments pilose at base, about 3 times as long as bracts, with oval yellowish anthers; gland only one, oblong, 1/2 as long as the orbicular obovate brownish silky bracts; pistillate catkins short pedunculate, 2—2,5 cm long, peduncle with 2 normal small leaves, rachis pilose, ovary ovate-elliptic sessile glabrous, style short 2-lobed at apex with most short 2-fid stigma; bracts broad obovate, yellowish brown, pilose at base, about as long as the young ovary; gland only one obovate, obtuse, 1/3 as long as ovary. — Pl. XXVI. fig. 51. Wilson no. 2118 (type).

Hupeh: Hsiang shan hsien, 1300—1700 m, Wilson 2118 (type! ♂ ♀ in Herb. Arn. Arbor.), 2118 A.

81. **Salix hypoleuca** Seemen in Bot. Jahrb. XXXVI. Beibl. LXXXII (1905) 31. — Schneider in Sargent, Pl. Wils. III (1916) 53. Pax et Hoffmann in Fedde, Rep. Beih. XII (1922) 353. — Rehder in Jour. Arn. Arbor. IV (1923) 142.

Shrub 0,9—3,6 m tall; branches dark brown glabrous; leaves elliptic, elliptic-oblong, lanceolate rarely ovate, attenuate into a short petiole, rounded or broadly cuneate at base, acute at apex, glabrous or scarcely pilose above, glaucous beneath, quite entire, 2—3,5 cm long, 1—1,5 cm broad, the larger ones to 5 cm long, 2 cm broad, the nerves prominent and reticulate beneath, petioles glabrous 3—8 mm long; catkins flowering at the same time, peduncle 3—10 mm long, rachis glabrous; staminate catkins 2,5—4,5 cm long, 5—6 mm thick; stamens 2, filaments villous below the middle, with globose small anthers; gland ventral ovate, incised at apex, 1/2 as long as the bracts; bracts obovate, glabrous, obtuse and brown; pistillate catkins densely flowered, 2,5—5 cm long, 5—7 mm thick, short pedunculate; bracts broad ovate, acute at apex, glabrous, 1/4 as long as the capsule; capsule subsessile, ovate, glabrous about 2,5 mm long, with one flattened gland at the base of pedicel. — Pl. XXVI. fig. 52 Biondi no. 5362 (type).

Shensi: In kia po, Biondi 5362 (type! ♂ ♀ in Herb. Berlin). — Szechuan: Mupin, thickets, alt. 2300—2600 m, Wilson 1411, 1411 A; the same locality, Wilson 1404, 4336, 4367; Wen chuan hsien, Limpricht 1308; Tal von Tsao po, alt. 1800 m, Limprict 1457. — Hupeh: Fang hsien, Wilson 4434, 4437; without locality, Wilson 334. — cult. in Arnold Arboretum.

Var. **platyphylla** Schneider in Sargent, Pl. Wils. III (1916) 54.

After Schneider this variety may be described as following: leaves broad elliptic, rounded at base, short apiculate at apex, 2,3—4,7 cm long, 1,5—3 cm broad; pistillate catkins in fruits elongated to 7—5 cm long.

Szechuan: Wen chuan hsien, Wilson 1418A (type ex Schneider) — cult. in Arnold Arboretum.

82. **Salix Tangii** Hao n. sp.

Erect shrub 1,5—2 m tall; branches reddish purple, glabrous (of male branches more or less pubescent); leaves oblong or elliptic-oblong, both sides glabrous, light green above, whitish green beneath, acute or obtuse at apex, rounded or broad attenuate at base, 1,5—4 cm long, 10—15 mm broad, petioles 4—5 mm long, glabrous; staminate catkins slender cylindrical about 2,5 cm long, 4 mm thick, rachis villous; bracts obovate, both surfaces glabrous, 1/2 as long as stamens; filaments pilose at base; ventral gland small; pistillate catkins similar to the staminate one, bracts broad-orbicular both surfaces glabrous, ventral gland cylindrical about 1/2 as long as bract; ovary sessile glabrous ovoid obovate, style somewhat capitate. — Pl. XXVII. fig. 53. Tang 794 (type).

Shansi: southern part, alt. 1800 m, habit in thickets, on slope, 5—6 ft., bark yellowish green, old trunk grayish black, fissured, T. Tang 805, May 20, 1929; Ping yao hsien, Me chiao ku, habit shaded, small tree, 5—6 ft., bark grayish green, smooth, branches purple brown, T. Tang 794 (type ♀ in Herb. Arn. Arbor.), May 19, 1929; the same locality, in forest, alt. 1800 m, 5 ft. tall, T. Tang 804 (type ♂ in Herb. Arn. Arbor. et Herb. Fan Memorial Institute Peiping), May 20, 1929. — Shensi: Tai pai shan, 2800 m, 1,5 m tall, young branches greenish, T. P. Wang 1683, August 3, 1933. — Kansu: Wu tu hsien, alt. 2500 m, Lan shan, K. S. Hao 434, June 19, 1930.

Sect. 18. **Cathayanae** Hao n. sect.

Shrubs; leaves lanceolate to oblong rarely obovate, serrate or denticulate, at flowering time usually small only 1—1,5 cm long, 4—6 mm broad; staminate catkins 2—4—7 cm long, one gland, with small leaves at base; pistillate catkins 4—7—10 cm long, gland one, ovary glabrous sessile or short pedicelled, leaves at the base of peduncle somewhat larger.

83. **Salix polyclona** Schneider in Sargent, Pl. Wils. III (1916) 55.

Shrub 2,4—3,6 m tall, much branched; branches nearly glabrous, purplish brown; leaves elliptic-oblong, glabrous except the nerves above, densely white pilose beneath, rounded at base, acute, entire, 1,5—3 cm long, 3—4 mm broad, petioles 1—4 mm long pilose or tomentose; pistillate catkins 2—3 cm long, about 5 mm thick, densely flowered, with sericeous rachis; peduncle 3—5 mm long, pilose with 2—3 small leaves; ovary sessile or nearly so, glabrous, ovate-oblong, style subbifid at apex with 2-lobed stigma; ventral gland 1, oblong, nearly as long as the rounded bracts which are brownish and long ciliate along the margin, silky within and without. — Pl. XXVII. fig. 54. Wilson no. 2116 (type).

Hupeh: Fang hsien, alt. 2300—2600 m, Wilson 2116 (type! ♀ in Arn. Arbor.), 2116 B.

84. **Salix luctuosa** Léveillé in Fedde, Rep. XIII (1914) 342. — Schneider in Sargent, Pl. Wils. III (1916) 119. — Handel-Mazzetti Symbolae Sinicae VII (1929) 68. — *Salix dyscrita* Schneider in Sargent, Pl. Wils. III (1916) 53.

Shrub 1,5—3 m tall with erect branches; branches sericeous-tomentose, then glabrous and lustrous brown; leaves elliptic, both ends

obtuse, green glabrous above except the nerves, silky tomentose beneath, margin entire, 1 cm long, 6 mm broad, the larger ones to 2,5 cm long, 10 mm broad, petioles 1—3 mm long, pilose; staminate catkins white villous, pedunculate, 3—4,5 cm long, 6—9 mm thick, terminal at 1 cm long and 3—4 leafy branches, rachis villous, densely flowered; stamens 2, filaments villous below the middle, with oval yellow anthers; ventral gland ovate-oblong, bracts broad ovate, blackish brown, nearly glabrous, dorsal gland very reduced or wanting; pistillate catkins 3 cm long, 6 mm thick; ovary subsessile glabrous with a rather long style which is bifid at apex, with small stigma, bracts ovate obtuse tomentose or hairy.

Szechuan: Ching chi hsien, Wilson 1429 bis (type! ♂ of *S. dyscrita* Schneider, in Herb. Arn. Arbor.). — Yunnan: Kiao me ti, 3200 m, E. E. Maire (type! ♂ ♀ in Herb. Edenb.), May 1913; Yangtze watershed, prefectural district of Likiang, eastern slope of Likiang Snow Range, J. F. Rock 3564, 3802, 3834, 3837, 3843, 3844, 3849, 3851, 3856, 3862, 4122, 4124, 4126, 4131; the same locality, Schneider 2323. — Shensi: Tai pai shan, near Yao wang miao, T. P. Wang 1863, alt. 3200 m, August 5, 1933. — Szechuan: without locality, Schneider 945.

85. **Salix rhoophyla** Schneider in Sargent, Pl. Wils. III (1916) 54.

Shrub 1,2—2,4 m tall much branched; branches villous or white pilose, subglabrous at maturity; leaves elliptic or elliptic-oblong, glabrous rarely lower side white tomentose, entire, 2—4,5 cm long, 1—1,5—2 cm broad, the larger ones to 8 cm long; petioles 4—10 mm long, puberulous above; staminate catkins subsessile 1—1,5 cm long, 6 mm thick, rachis villous, with 2 scalelike leaves at the base; stamens 2, filaments villous at the base, with ovate-globose small yellow anther; ventral gland quite broad; bracts oval rounded or subtruncate at apex, yellowish brown, glabrous, 1/2 as long as filament; pistillate catkins 1,2—2,5 cm long, 3—(4) mm thick, rachis hairy, with 2—3 small leaves; ovary sessile ovate glabrous with short entire stigma; bracts broad-ovate, obtuse, brownish, as long as the ovary, glabrous; ventral gland ovate or indistinctly 4-angular, 1/3 as long as the ovary. — Pl. XXVIII. fig. 55. Wilson no. 2117 (type).

Hupeh: Fang hsien, side of streams, alt. 2300—2600 m, Wilson 2117 (type! ♂ ♀ in Herb. Arn. Arbor.); the same locality, Wilson 2117 A, 2117 bis (type! in Herb. Arn. Arbor.).

86. **Salix longiflora** Wallich apud Andersson in Jour. Linn. Soc. IV (1860) 50. — Hooker f., Fl. Brit. Ind. V (1888) 633. — Brandis, Ind. Trees (1908) 637. — Léveillé in Bull. Bot. France LVI (1909) 299. — Schneider in Sargent, Pl. Wils. III (1916) 121. — Handel-Mazzetti Symbolae Sinicae VII (1929) 66.

Shrub up to 3 m tall; branches glabrous more or less angular, bark blackish; buds small pubescent; leaves at maturity 4—6 cm long, lanceolate, both ends acute, margin entire, both surfaces glabrous except along the nerves; petioles about 5 mm long, scarcely pilose; catkins spreading and pendulous, 4—7 cm long, 5 mm thick, densely flowered, with 2—4 basal leaves, rachis hirsute, bracts subspathulate

glabrous or puberulous without; capsule ovate glabrous, nearly sessile; style indistinct with two 2-parted stigma.

Szechuan: Mountains of Kulu, 4000 m, 1—1,5 m tall, J. F. Rock 17966, June 1929. — Yunnan: Yangtze watershed, district of Likiang, eastern slope of Likiang Snow Range, J. F. Rock 3789, Oct. 1922.

Distribution: India, Wallich (co-type! ♀ in Herb Berlin), Sikkim, J. D. Hooker (co-type! ♂ in Herb. Berlin).

Var. **albescens** Burkill in Jour. Linn Soc. XXVI (1899) 530. — Léveillé in Bull. Bot. France LVI (1909) 299.

„Folia obovata vel elliptica, tempore fructus maturi 8—15 lin. longa, 5—6 lin. lata, juniora pilis albis (nec rufescentibus) subsericea, dein glabrescentia."

Szechuan: Ta chien lu, Mussot 347 (type ex Burkill).

87. **Salix pseudowolohoensis** Hao n. sp.

Erect shrub; branches tomentose; leaves lanceolate-oblong, dark green sparingly hairy above, silky tomentose beneath, 3—5 cm long, 8—15 mm broad, both ends acute; petioles very short or wanting; catkins terminal at branches, with 4—5 small entire lower side silky leaves; ovary glabrous short pedicelled, ovoid-obovate; style capitate without stigma; capsule ovoid pedicelled, about 3 mm in diameter, ventral gland elliptic in form, bracts ovate both sides glabrous, slightly longer than the pedicel. — Pl. XXVIII. fig. 56. Rock no. 3353 (type).

Yunnan: Yangtze watershed, prefectural district of Likiang, eastern slope of Likiang Snow Range, J. F. Rock 3353 (type ♀ in Herb. Berlin), May-Octomber 1922. — Hopeh: Lai shui hsien, dans les vallees, K. M. Liou 2259, May 31, 1934.

88. **Salix caloneura** Schneider in Bot. Gaz. LXIV (1917) 141, fig. G. 1—6.

Tall shrub; branches of last year glabrous, reddish brown in colour, those of this year yellowish white, also glabrous; buds small ovate about 2 mm long; leaves obovate-elliptic, the larger one elliptic-oblong, short acute at apex, obtuse or subrounded at base, dark green with quite elevated lateral yellow nerves above, glaucous white beneath, margin entire or indistinctly crenulate, 4—7 cm long, 2—3,5 cm broad, the larger ones 9—10 cm long, 3—3,5 cm broad, petioles 5—15 mm long pubescent usually sulcate above; pistillate catkins dense in fruits to 7 cm long, 1 cm thick, rachis glabrous, with 3—4 normal leaves at the base of the about 15 mm long peduncle; ovary ovate-oblong, ventral gland more or less truncate, style distinct divided into two bifid stigma; bracts ovate elliptic, glabrous slightly longer than the pedicel; capsule short pedicelled although when young, about 6 mm long, ovate-elliptic glabrous. — Pl. XXIX. fig. 57. Schneider 1425 (type).

Szechuan: Hua li, Schneider 1425 (type! ♀ in Herb. Arn. Arbor., Herb. Berlin), alt. 2800 m, May 27, 1914.

89. **Salix denticulata** Andersson in Svenk. Vetensk. Akad. Handl. 1850, 481 (1851). — Andersson Monog. Salic. 168 (1867) Taf. IX. fig. 100. — Hooker f., Fl. Brit. Ind. V (1888) 630. — Léveillé in

Bull. Bot. France LVI (1909) 299. — Burkill in Jour. Linn. Soc. XXVI (1899) 558. — Schneider in Sargent, Pl. Wils. III (1916) 117. — *Salix elegans* Wallich cat. no. 3699 (1828). — *Salix kamaunensis* Lindley in Wallich cat. no. 3701 (1828).

Branches pubescent when young; leaves ovate or elliptic-oblong, both surfaces glabrous, but beneath more glaucous, margin denticulate, acute or subrounded at apex, broad cuneate at base, 3—5 cm long, 12—22 mm broad; staminate catkins pedunculate, terminal at short branches, with 3—4 normal basal leaves, rachis pilose, about 2,5 cm long; bracts about 1/3 as long as stamens, glabrous, stamens long hairy below the middle, glands about 2/3 as long as bract elliptic oblong; pistillate catkins about 4 cm long, in fruits to 9 cm long, bract quite glabrous, ovary glabrous, style indistinct with 2 bilobed short stigma; capsule elliptic-oblong about 4 mm long.

Szechuan: without locality, Rosthorn 176. — North Himalaya, 6—9,000 ft., J. D. Hooker (type! ♂ ♀ in Herb. Kew, Herb. Berlin); — West Himalaya, near Mandali, alt. 8,000 ft., Duthie 12917, 12998, 13000. also recorded in Yunnan.

Distribution: Baltol, Wallich 3701 (type! of *S. denticulate*), Nepal, Wallich 3699 (type of *S. elegans*), Kashmir, Sikkim, Afghanistan and India.

90. **Salix Wangiana** Hao n. sp.

Shrub 2—3 m tall; branches glabrous blackish, usually erect; leaves ovate or elliptic, rounded at apex, broad attenuate or rounded at base, both surfaces glabrous, dark green above, glaucous beneath, 3—5 cm long, 2,5—3,5 cm broad, margin remotely denticulate; petioles glabrous 5—15 mm long; catkins subsessile appearing before the leaves, in fruits about 5—6 cm long; ovary sessile glabrous elliptic oblong; style slender about 1,5 mm long, with 2 stigma; bracts oval-oblong, both sides glabrous, about 1/3 as long as the ovary; only ventral gland present; capsule including the persistent style 7—8 mm long; staminate catkins not seen.

Shensi: Tai pai shan, Ming sin sze, alt. 2700 m, 2—3 m tall, T. P. Wang 1769 (type ♀ in Herb. Peiping), August 4, 1933.

91. **Salix Delavayana** Handel-Mazzetti Symbolae Sinicae VII (1929) 78. — *Salix sikkimensis* Burkill in Jour. Linn. Soc. XXVI (1899) 532, non Andersson.

Shrub 2—6 m tall; buds ovoid 5—10 mm long, brown, glabrous and coriaceous; leaves elliptic-oblong, 3,5—8 cm long, 2,5—3 cm broad, acute or obtuse at apex, rounded or subcordate at base, margin entire, lustrous green above, glaucous beneath, both sides white pilose when young, becoming glabrous; stipules small, broad ovate; petioles and middle nerves of leaves usually puberulous; staminate catkins 2—4 cm long, 4—7 mm thick; bracts oblong, 1,5—2,5 mm long, brown, submembranaceous, glabrous; gland 1/3 as long as bract; stamens 2, free, 4—5 mm long, densely hairy below the middle; pistillate catkins 2—5 cm long, in fruits to 10 cm long, 3—5 mm thick, only with ventral gland; ovary glabrous, subsessile, or slightly puberulous at the

base, stigma 2, shorter than the glabrous style; capsule to 5 mm long, glabrous.

Yunnan: San schi schao, Handel-Mazzetti 8738 (type! ♂ ♀ in Herb. Wien); Yü lung shan, bei Likiang, Forrest 5669, 5741, 21325; the same locality, J. F. Rock 3272, 3384, 3683, 3807, 3835, 3836, 4123, 4125, 4141, 4750; without precise locality, Delavay 2792 (type! in Mus. Paris). — Szechuan: zwischen Woloho und Gaitin, Handel-Mazzetti 2971 (type! ♀ in Herb. Wien).

Male and female flowers appearing on a same catkin.

92. **Salix cathayana** Diels in Not. Bot. Gard. Edinb. V (1912) 281. — Schneider in Sargent, Pl. Wils. III (1916) 57. — Pax et Hoffmann in Fedde, Rep. Beih. XII (1922) 353. — *Salix longiflora* Burkill in Jour. Linn. Soc. XXVI (1899) 530 non Andersson.

Shrub 0,6—4,5 m tall, much branched; branches villous or tomentose, becoming glabrous or subglabrous and yellowish brown; buds short ovate, obtuse, pilose, slightly shorter than the petioles; leaves elliptic or elliptic-lanceolate, both ends obtuse or acute, dark green and puberulous above, glaucous beneath, 1—5 cm long, 6—15 mm broad, petioles 2—5 mm long somewhat pilose; catkins 2—3(—3,5) cm long, 6—8 mm thick, densely flowered, peduncle 5—15 mm long villous with 3—6 normal leaves; stamens 2, filaments pilose below the middle, 2—3 times as long as bracts, with oval or subglobose yellow anthers; gland 1, ovate-oblong, quite thick, slightly shorter than bract; bracts ovate or obovate, rounded at apex, ciliate along the margin, yellowish brown; pistillate catkins narrow cylindrical, short pedunculate, densely flowered, 2—3,5 cm sometimes to 5 cm long; style short, cleft at apex with 2-fid stigma; ovary sessile ellipsoid, glabrous, about 3 mm long; capsule 3—4 mm long, ovate-oblong, sessile or nearly so, glabrous; bracts sometimes ovate oblong.

Yunnan: between Chien chuan plain and the Mekong drainage basin to La chi ming, J. F. Rock 8586, May 1923; Yangtze watershed, in the prefectural district of Likiang, eastern slope of Likiang Snow Range, Rock 4096, May 12—29, 1922; the same locality, Rock 3339, 3406; Hi chiang fu, alt. 2900 m, Schneider 2021, July 27, 1914; Tali Range, G. Forrest 4600 (type! ♀ in Herb. Berlin, Herb. Edinb.); Tali shan, 10,000—11,000 ft., Forrest 19387; Mosoyn, J. Delavay (co-type! ♂ in Mus. Paris, Herb. Berlin); Likiang Snow Range, Rock 3653; without precise locality, Pater Simon Tin 198. — Szechuan: Lololand, Urwald bei Lang pa, Schneider 1049, April 25, 1914; Ning yüan fu, Lo tieh shan, Schneider 898, April 5, 1914; near Kua pie, Schneider 3564, May 30, 1914; between Kalapa and Liuku, 3 m tall, alt. 3200 m, Schneider 1278, May 17, 1914; Wen chuan hsien, Tal von Tsao po, Limpricht 1420; Nan chuan hsien, alt. 5000—6000 ft., Fang 823, May 16, 1928; the same locality, Fang 857 and 911, May 1928; in this province also collected by Wilson such as 1402, 1405, 1405 A, 1408, 1408 A, 1428, 2127, 2130, 2131, 2135, 2135 A, 4367, 4368. — Shensi: Ning shan hsien, 2000 m, Kung 3222, July 25
Tai pai shan, Yao wang miao, Wang 1861, 3200 m, August
Chung nan shan, 1500 m, Kung 2619, June 2, 1933; T[illegible] pai shan,

Wang 1862, August 5, 1933. — Hupeh: Patung, 5000 ft., A. Henry 5296. — Hopeh: Po hua shan, Bretschneider. — Honan: Hwei hsien, Shansi border, named mountain willow, J. Hers 705.

Sect. 19. **Hastatae** Borrer in Hooker, Brit. Fl. 433 (1830). — Schneider in Sargent, Pl. Wils. III (1916) 129.

Leaves orbicular to rhombic-elliptic lanceolate, margin serrate, cordate or rounded at base; stipules usually larger, semispherical irregularly glandular-serrate; catkins sessile, 10—15 mm thick; male flower with one ventral gland and glabrous filaments; female flower also only with one ventral gland; ovary long pedicelled, quite glabrous; capsule glabrous ovate ovoid.

93. **Salix pirolaefolia** Ledebour Fl. Alt. IV (1833) 270. — Ledebour Icon. Pl. V. 22, taf. 476 (1834). — Turczaninow Fl. Baical.-Dahur. III. fasc. I. 112 (1856). — Schneider in Sargent, Pl. Wils. III (1916) 134. — *Salix pirolifolia* var. *cordata* Ledebour Fl. Alt. 271. (1833). — *Salix sabulosa* Turczaninow ex Ledebour, Fl. Ross. III pt. 2, 613 (1850).

Leaves orbicular to rhombic-elliptic, dark green and lustrous above, glabrous and slightly glaucous beneath, margin irregularly serrate, rounded or broad attenuate rarely cordate at base, acute to ovate at apex; petioles about 1/8 as long as the leaves quite glabrous; staminate catkins sessile, with golden filaments and golden anthers, 2—3 cm long, about 8 mm thick; filaments 2, free, wholly glabrous, ventral gland 1/4 as long as the elliptic-acute bracts which are long ciliate and long hairy without, this hair usually longer than the bracts; pistillate catkins 2,5—5 cm long, about 10 mm thick, rachis villous; ovary elongated, both ends acuminate, quite glabrous, with distinct pedicel, about 6 mm long; bracts lanceolate, acute, pubescent on both sides, long hairy along the margin, ventral gland well developed; style slender, divided into two bilobed stigma; capsule glabrous pedicelled.

Altai, Ledebour (type! ♂ ♀ in Herb. Petrop.); — Tibet: Tsankar, Schlagintweit 6702. — cult. in the Botanical Garden Petersbourg.

Distribution: Siberia and Dahuria.

94. **Salix hastata** Linnaeus Sp. 1017 (1753). — Villars Pl. Dauph. III. 774 (1789). — Turczaninow, Fl. Baical.-Dahur. III. fasc. I, 111 (1856). — Andersson Monog. Salic. 170 (1867). — Brandis, Forest Fl. Brit. Ind. 467 (1874). — Hooker f., Fl. Brit. Ind. V (1888) 630. — Herder in Act. Hort. Petrop. XI (1891) 421. — Schneider, 111. Handb. Laubholzk. I. 51, fig. 230, 24 m—n (1904). — Schneider in Sargent, Pl. Wils. III (1916) 134.

Erect shrub with purplish glabrous branches; leaves elliptic-lanceolate, margin serrate, the small one at catkin-base entire, green glabrous above, white green beneath, acute at both ends; petioles short glabrous only 3—5 mm long; staminate catkins densely flowered, 2,5—3 cm long, rachis long hairy; bracts elliptic, acute, hairy on both sides, this hair along the margin nearly as long as the filaments; filaments 2, sometimes more or less adnate each other, well glabrous,

2 times as long as bract; ventral gland present, difficult to be found; pistillate catkins much longer than the male one; bracts elliptic, ovate at apex, the hair along the margin about as long as the ovary; ovary glabrous about 5 mm long, pedicelled; style slender 2 mm long, with 2 bilobed short stigma, ventral gland nearly wanting, rachis pilose; capsule with persistent style, about 7 mm long.

Tibet: Balti, Schlagintweit 6096; Western Himalaya, 9,000—15,400 ft., Schlagintweit 8916; Kamaon, Schlagintweit, 9624.

Distribution: from Europe to Asia.

Var. **himalayensis** Andersson in Monog. Salic. 173 (1867). — Schneider in Sargent, Pl. Wils. III (1916) 134. — Differs from the type in the much larger capsule and much elongated style.

Tibet, 11—15,000 ft., Thomson (type ex Andersson).

Sect. 20. **Daphnoideae** Dumortier, Fl. Belg. Prodr. 12 (1827). — Schneider in Sargent, Pl. Wils. III (1916) 154.

Erect shrubs with elongated and pruinose branches; leaves long lanceolate, acuminate glaucous beneath; catkins sessile, thick cylindrical, with golden pilose; male flowers possessing only ventral gland, stamens 2 with yellow anthers; female flowers subsessile, pedicel glabrous, ventral gland present, style long, with entire elongated stigma; bracts glandular-denticulate at base; *S. daphnoides* Villars has been taken as the typical form in this section.

95. **Salix Léveilléana** Schneider in Sargent, Pl. Wils. III 176 (1916).

Shrub or tree?; flowering branches sericeous-villous; buds oblong, short pilose; leaves not known; pistillate catkins appearing before the leaves, sessile to 5 cm long, 10 mm thick, by and by thiner toward the apex, usually curved, densely flowered, rachis villous; ovary glabrous ovate short pedicelled; style about as long as ovary, puberulous, stigma linear 2—3 lobed, ventral gland obtuse-rectangular; bracts oblong subobtuse brownish long sericeous; capsule not known.

Yunnan: Vallé de Kiao mé ti, ruisseau, alt. 3000 m, E. E. Maire (type! ♀ in Herb. Paris), April 1913.

96. **Salix daphnoides** Villars Pl. de Dauph. III. 765 (1789). — Reichenbach, Ic. Fl. XI. t. 602 (1849). — Wolf in Act. Hort. Petrop. XXI (1903) 194. — Burkill in Jour. Linn. Soc. XXVI (1899) 527. — Seemen Salic. Jap. 49 (1903). — Schneider in Sargent, Pl. Wils. III (1916) 154. — *Salix daphnoides* var. *indica* Andersson in Jour. Linn. Soc. IV (1860) 46. — *Salix oxycarpa* var. *serratifolia* Andersson in Jour. Linn. Soc. IV (1860) 46.

Leaves lanceolate, acuminate, rounded or broad attenuate at base, distinctly serrate, to 12 cm long, about 15 mm broad; stipules ovate-cordate glaucous and as serrate as the leaf; staminate catkins producing before the leaves, sessile, with dense yellow cotton, 3—4 cm long, 15 mm thick, bracts triangular both sides long hairy, this hair on the bracts as long as filaments; pistillate catkins subsessile, 5 cm long, 8 mm thick; ovary and style about equal long, glabrous, style capitate with indistinct stigma; capsule glabrous long pedicelled, about 6 mm long.

Manchuria: Amur, Maximowicz; Nikolsk Ussuriisk, Suizev 2 ♂, April 7, 1905; the same locality, Siuzev 47 ♀, 49 ♀, 70 ♂, 100 ♂.

Distribution: from Europe trough Siberia to Sachalin Island.

Sect. 21. **Chingianae** Hao n. Sect.

Trees or shrubs; leaves lanceolate both ends acute or long acuminate at apex, glabrous, petioles 6—15 mm long; catkins elongated 4—6 cm long, with 3—5 normal leaves at the base, usually pedunculate; male flower with 2 free filaments and one ventral cylindrical gland; female flower with glabrous sessile or pedicelled ovary and one ventral gland; capsule obovate-ovoid.

97. **Salix Rehderiana** Schneider in Sargent, Pl. Wils. III (1916) 66. — Pax et Hoffmann in Fedde, Rep. Beih. XII (1922) 353.

Erect shrub 2—3,6 m tall; buds ovate-oblong compressed yellowish brown; leaves lanceolate to oblanceolate, obtuse or acute, short acuminate, dark green and along the nerves pilose above, glaucous or white pilose beneath, irregularly glandular-crenuate rarely subentire, 5—11,5 cm long, 1,2—2,5 cm broad; petioles 2—8 mm long; catkins with 2—3 lanceolate and entire leaves at base; staminate catkins to 2,5 cm long, 10 mm thick; ventral gland narrow oblong, 1/3 as long as bracts, filaments free or adnate and pilose at base, anthers purple; bracts oblong villous; ovary sessile nearly glabrous, ovate-oblong; pistillate catkins 2—3 cm long, 8 mm thick, style distinct, bract oblong 3/4 as long as ovary.

Szechuan: Mupin, alt. 2000 m, Wilson 1403 (type! in Herb. Arn. Arbor.; co-type in Herb. Berlin); Wen chuan hsien, 1600—2000 m, Wilson 1421; Mupin, Wilson 4364, 4368; Kuan hsien, Wilson 4357; Wa shan, Wilson 1424, 2125; Wen chuan hsien, bei Tsao po, Limpricht 1483. — cult. in Arnold Arboretum.

Var. **brevisericea** Schneider in Sargent, Pl. Wils. III (1916) 67. — *Salix nigrocostica* Pax et Hoffmann in Herb. Berlin.

Erect shrub with glabrous and black straited branches; leaves spathulate-oblong, 10—18 mm long, 4—7 mm broad, both sides yellowish tomentose or silky, sessile; pistillate catkins sessile about 2,5 cm long, 6 mm thick, rachis villous; ovary sessile white pilose elliptic ovoid; style glabrous blachish 1,5 mm long, stigma short oblong; bracts elliptic 1/2 as long as the pubescent ovary, both sides pilose, ventral gland cylindrical.

Szechuan: Ching chi hsien, Ta hsing ling, alt. 2300—3000 m, Wilson 1429 (type! ♀ in Herb. Arn. Arbor.).

This variety differs from the type principally in its more acute bracts and in its short silky pubescent young fruits.

98. **Salix heterochroma** Seemen in Bot. Jahrb. XXI. Beibl. LIII. 56 (1896). — Schneider in Sargent, Pl. Wils. III (1916) 61. — Hers in Jour. N. China Branch R. As. Soc. LIII. 115 (1922). — Rehder in Jour. Arn. Arbor. IV (1923) 142. — *Salix Henryi* Burkill in Jour. Linn. Soc. XXVI (1899) 530. — Léveillé in Bull. Bot. France LVI (1909) 299.

Branches dark brown glabrous; leaves oval-lanceolate, long acuminate, attenuate into the petiole, quite entire, to 11,5 cm long,

3 cm broad, dark green above, light green silky pilose beneath, petioles to 10 mm long; staminate catkins subsessile, 3—5,5 cm long, 8—11 mm thick, with 2 scalelike small leaves which are hairy beneath, rachis sericeous; stamens 2, filaments pilose, 2 to 2½ times as long as the bracts, anthers ovate-oblong yellow; bracts oblong, obtuse, yellowish brown, both sides sericeous, long ciliate; gland obovate thick, ⅓ as long as bract; pistillate catkins long cylindrical in fruits to 10 cm long, 15 mm thick, loosely flowered; peduncle to 10 mm long, short hairy; bracts lanceolate-acute, slightly longer than the pedicel, densely hairy; pedicels 4 times as long as gland; capsule ovate 5 mm long, usually pilose. — Pl. XXX. fig. 59. Henry 5671 (type).

Hupeh: Hsiang shan hsien, woods alt. 1700—2000 m, Wilson 2119, 2119A; Chien shi hsien, A. Henry (type! ♀ both of *S. heterochroma* Seemen and of *S. Henryi* Burkill, in Herb. Berlin, Herb. Kew); westen part, A. Henry 5843 (type! ♂♀ in Herb. Berlin), in 1885—1888. — Szechuan: Wa shan, A. Henry 5671; Omei Mt., Wilson 5794; Tchen keou tin, Farges; Nan chuan hsien, Rosthorn 1510. — Honan: Lu shih, Hiung eul shan, alt. 1400 m, J. Hers 935.

The same specimens A. Henry's nos. 5671 and 5843 have been first in 1896 described by Seemen as *S. heterochroma* and three years later in 1899 described by Burkill as *S. Henryi* too.

99. **Salix Chingiana** Hao n. sp.

Small tree up to 7 m tall; branches blackish purple glabrous; leaves lanceolate 7—10 cm long, 17—20 mm broad, acute at both ends, green above, palish beneath, both surfaces glabrous, margin glandular serrate; petioles about 13 mm long, glabrous and glandular; pistillate catkins elongated to 10 10 cm long (in fruits) rachis pilose, pedunculate, with 2—3 normal leaves at the base; ovary glabrous elliptic-oblong, long pedicelled; bracts ovate both sides sparingly hairy; ventral gland cylindrical about as long as the short pedicel. — Pl. XXX. fig. 60. Ching 584 (type).

Kansu: Lan ze cheon kou, near Sining, alt. 2650 to 3100 m, R. C. Ching 584 (type ♀ in Herb. Arn. Arbor.), July 23, 1923.

100. **Salix spathulifolia** Seemen in Bot. Jahrb. XXXVI. Beibl. LXXXII. 31 (1905). — Léveillé in Bull. Bot. France LVI (1909) 304. — Schneider in Sargent, Pl. Wils. III (1916) 114. — Rehder in Jour. Arn. Arbor. IV (1923) 141.

Branches brown and glabrous; buds glabrous; leaves spathulate to 8 cm long, 2,5 cm broad, margin irregularly serrate or entire, glabrous dark green above, also nearly glabrous beneath; petioles 1,5 cm long, smooth; pistillate catkins densely flowered, pendulous, rachis villous, 6 cm long, 10 mm thick with grayish hairy peduncle; bracts broad ovate denticulate as long as the capsule; capsule pedicelled, rounded from the base, grayish hairy; style ⅔—¾ as long as capsule, deeply 2-parted; the ventral gland short, broad-ovate, truncate and flattened. — Pl. XXXI. fig. 61. Giraldi no. 7268 (type).

Shensi: Huan tou shan, flowering in June, G. Giraldi 5359 (type! ♀ in Herb. Berlin); the same locality, G. Giraldi 7268 (type! ♀

in Herb. Berlin); Tai pai shan, W. Purdom 1109 and 1910; Tai pai shan, 2530 m, Hao 4316, September 17, 1932; Ming sin zse, also on Tai pai shan, 2500 m, Hao 4320, September 17, 1932; the same locality, near Ping an sze, small tree, 15—20 ft. tall, Y. Y. Pai 1523, Oct. 4, 1934; Ming sin sze, 3—4 m tall, T. P. Wang 1787, August 4, 1933. — Kansu: upper Kar ching kou, near Old Taochow, alt. 3800—4300 m, R. C. Ching 858, August 28—31, 1923.

101. **Salix chikungensis** Schneider in Bailey, Gentes Herbarum 17 (1920) fig. 3. — Rehder in Jour. Arn. Arbor. IV (1923) 138.

Shrub; branches white tomentose when young becoming glabrous; buds ovate yellowish brown glabrous; leaves subchartaceous elliptic-oblanceolate or elliptic, acute at base, short acuminate at apex, 6—7 cm long, 15—20 mm broad, upper surface green glabrous, lower surface whitish sericeous when young, then glabrous and glaucous, margin distinctly denticulate-serrate; petioles short to 8 mm long, subsulcate above; stipules if present semiovate-lanceolate, as long as petiole; catkins cylindrical to 3,5 cm long, 8 mm thick, with 3—5 small normal leaves at the peduncle, rachis tomentose; ovary acute subsessile glabrous style short with short stigma, both ventral gland and dorsal gland present, the ventral one broad ovate obtuse, the dorsal one much smaller; capsule ovate elliptic, including pedicel about 4 mm long. — Pl. XXXI. fig. 62. Baily (type).

Honan: Chi kung shan, L. H. Bailey (type! ♀ in Herb. Arn. Arbor.). — Hupeh: on the divide between the Yangtze and Hwei-ho Rivers, alt. 1500—2500 ft. Bailay (type! ♀ in Herb. Arn. Arbor.).

Sect. 22. **Myrtilloides** Borrer in Loudon, Arb. Brit. III 1857 (1838). — Koehne, Deutsch. Dendr. 102 (1893). — Schneider in Sargent, Pl. Wils. III (1916) 152.

Spreading shrubs with slender branches; leaves ovate or elliptic, glabrous, glaucous beneath; catkins pedunculate with several small leaves at the base, loosely flowered; bracts slightly infuscate at apex; male flower with 2 stamens, ventral gland present, filaments free, anthers yellow oval; female flower with one ventral gland; ovary glabrous long pedicelled, style short, stigma 2-lobed; capsule glabrous elliptic-oblong.

102. **Salix myrtilloides** Linnaeus Sp. 1019 (1753). — Villars Pl. de Dauph. III. 770, t. 50. fig. 13 (1789). — Andersson Monog. Salic. 95 (1867) Taf. V. fig. 53. — Komarov in Act. Hort. Petrop. XXII (1904) 26. — Léveillé in Bull. Bot. France LVII (1909) 300. — Nakai in Jour. Coll. Sci. Tokyo XXXI (1911) 214. — Schneider in Sargent, Pl. Wils. III (1916) 153.

Erect shrub; branches pubescent; leaves ovate to elliptic, both surfaces glabrous, dark green above, glaucous beneath, acute or ovate at apex, rounded at base, margin entire, 5—35 mm long, 3—15 mm broad, the intermediate ones circa 10 mm long, 6 mm broad; staminate catkins terminal at branches, with several small leaves at the base, 1—1,5 cm long; filaments 2, glabrous; bracts orbicular, both surfaces scarcely pilose; ventral gland well developed, about 1/2 as long as the

bracts; ovary glabrous, elliptic-oblong; bracts about as long as the pedicel, both sides sparingly hairy; pedicel to 4 mm long, glabrous; ventral gland cylindrical, nearly as long as the pedicel; style short with 2 bifid stigma; capsule glabrous elongated to 10 mm long.

Kirin: O mu hsien, in shallow water, H. W. Kung 1696, July 3, 1931. — Amur, Maximowicz, Komarov and other collectors.

Distribution: from Europe over Siberia to Kamtschatika.

Sect. 23. **Capreae** Bluff et Fingerhuth, Camp. Fl. Germ. II. 565 (1825). — Schneider in Sargent, Pl. Wils. III (1916) 148.

Small shrubs; leaves ovate elliptic obovate to obovate-lanceolate, upper surface often with rugose nerves, and elevated or reticulate beneath; catkins flowering at different time, sessile, ovate or cylindrical, 12—17 mm thick; bracts with dense long hairs; stamens 2, with free filaments and yellow anthers, only ventral gland present; female flower also only with one ventral gland, ovary pilose long pedicelled rarely sessile, style wanting or very short, stigma short or oblong. The species belonging to this section is easily distinguished by the long pedicel and the short style or sessile stigma.

103. **Salix spodiophylla** Handel-Mazzetti, Symbolae Sinicae VII (1929) 77. — *Salix floccosa* Diels in Not. Bot. Gard. Edinb. VII. 119. — *Salix Wangii* Görz in Herb. Berlin.

Shrub from 15 cm to 1,2 m tall, with thick and ascending branches; buds to 10 mm long, coriaceous, more or less pubescent; leaves obovate to obovate-lanceolate, 18—73 mm long, 12—25 mm broad, acute or subovate at apex, narrow attenuate at base, both surfaces densely whitish yellow hairy; petioles 4—8 mm long; catkins appearing nearly at the same time, sessile, oblong or cylindrical; staminate catkins 2—3 cm long, rachis sericeous hirsute; bracts 3—4 mm long submembranaceous brown, long hairy without, glabrous within, retuse at ovate apex, ventral gland about ½ mm long; stamens 2, filaments 5—7 mm long, nearly wholly villous, anthers short oblong; pistillate catkins 2,5 cm long, in fruits to 9 cm long; bracts linear-oblong, truncate at apex; ventral gland linear, blackish; ovary sessile ovoid densely villous, upper part glabrous, about 3 mm long; capsule 3,5 mm long, glabrous; style thick divided into two bilobed stigma.

Szechuan: Yung ning, Handel-Mazzetti 7309 (type! ♀ in Herb. Wien), Forrest 21263; West of Wen chuan hsien, alt. 3560 m, Wang 21253 (type! of *S. Wangii* Görz), June 10, 1930. — Yunnan: Yülung shan bei Likiang, 12000 ft., Forrest 10256 ♀ (type!), 10121 ♂ (type!), 5833; Eastern slope of Likiang Snow Range, J. F. Rock 3372, 3593 (type! ♂ ♀ in Herb. Berlin); summit of exposed cliffs forming a side valley on the eastern flank of the Likiang Range, Forrest 2318.

f. **liocarpa** (Görz) Hao. — *Salix Wangii* f. *liocarpa* Görz in Herb. Berlin.

Differs from the type in the glabrous ovary.

Szechuan: open bouldery alpine meadows on the mountains east of Yung ning, Forrest 21263 ♀.

104. **Salix polia** Schneider in Sargent, Pl. Wils. III (1916) 174.

Erect shrub; branches densely white tomentose, becoming glabrous and yellowish green; buds ovate-acute reddish brown more or less tomentose; leaves lanceolate or oblanceolate, short acute at apex, attenuate at base, densely sericeous-villous above, densely white sericeous villous beneath, margin ciliate, 2—4 cm long, 4—8 mm broad, minute glandular denticulate; catkins sessile (without small leaves at the base as Schneider described) erect, densely flowered, cylindrical, 3—4 cm long, 12 mm thick, rachis villous; ovary sessile ovate, densely sericeous villous, style entire with linear stigma; bracts broad obovate 1/3 as long as ovary, both sides villous; ventral gland oblong-rectangular, truncate or emarginate at apex; capsule sericeous-villous about 6 mm long. — Pl. XXXII. fig. 63. Meyer 733 (type).

Mongolia: near Saisansk, along a watercourse in sandy soil, F. N. Meyer 733 (type! ♀ in Herb. Arn. Arbor.), May 21, 1911.

105. **Salix obscura** Andersson in De Candolle, Prodr. XVI. pt. 2, 269 (1868). — Hooker f., Fl. Brit. Ind. V (1888) 632. — Burkill in Jour. Linn. Soc. XXVI (1899) 531. — Léveillé in Bull. Bot. France LVI (1909) 300. — Schneider in Sargent, Pl. Wils. III (1916) 161.

A diffuse shrub with tomentose shoots and smooth and stout branches, bark black; leaves elliptic or linear-lanceolate, acute, dull green above, on the midribs being brown pubescent, 6—9 cm long, lower side glabrous or subsilky reddish or glaucous and somewhat shining, margin entire or very remotely toothed; female catkins sessile, bracts minute acute black tips hairy, 3—4,5 cm long, 10 mm thick; capsule small sessile, broadly ovoid puberulous, style slender thickened upwards, stigma very short erect entire. — Pl. XXXII. fig. 64. Pantling no. 46485 (type).

Szechuan: Ta chien lu, Soulie 22.

Distribution: Sikkim, Lachen, J. D. Hooker (type! ♀ in Herb. Kew), Pantling 46485B (type! ♀ in Herb. Kew).

106. **Salix insignis** Andersson in Jour. Linn. Soc. IV (1860) 47. — Brandis, Forest Fl. Brit. Ind. 470 (1874). — Hooker f., Fl. Brit. Ind. V (1888) 631. — Schneider in Sargent, Pl. Wils. III (1916) 152.

Erect shrub with glabrous reddish purple branches; leaves lanceolate, to 12 cm long, 1—1,5 cm broad, both surfaces glabrous, light green above, whitish gray beneath, margin regularly distinctly serrate; petioles 1—1,5 cm long, yellowish purple and glabrous as the middle nerves; stipules linear-lanceolate to 15 mm long; catkins appearing before the leaves, filaments free or partly adnate together quite glabrous; bracts long hairy on both sides; ventral gland about 1/4 as long as the bracts; ovary with a distinct style between the stigma and the ovary, usually pilose; bracts nearly as long as the ovary, both surfaces only long hairy in the central part, ovate at apex, elliptic oblong; ventral gland cylindrical 1/2 as long as the pilose pedicel.

Tibet: reg. temp. J. D. Hooker (type! ♂ ♀ in Herb. Berlin), Schlagintweit 10451.

Distribution: Kashmir, Hooker et Thomson (type! ♂ ♀ in Herb. Berlin).

107. **Salix sikkimensis** Andersson in De Candolle, Prodr. XVI. pt. 2, 268 (1868). — Hooker f., Fl. Brit. Ind. V (1888) 632. — Léveillé in Bull. Bot. France LVI (1909) 300. — Schneider in Sargent, Pl. Wils. III (1916) 115.

Branches stout angled smooth erect shining glaucous, bark very dark; leaves (young) ovate lanceolate obtuse quite entire glabrous above, densely silky and coppery beneath, dark brown when dry; staminate catkins subsessile about 3 cm long with deciduous basal leaves stout curved villous; stamens 2, free, with linear-oblong anthers; bracts obovate-cuneate villous tip toothed densely villous with long hairs; pistillate catkins as the staminate one but narrower; capsule sessile conic dense silky hairy nearly hidden by the villous bracts, at apex narrowed into the deeply cleft style, style nearly as long as the capsule, stigma subbilobed brown in colour usually spreading. — Pl. XXXIII. fig. 65. Watt no. 5442 (type).

Yunnan: woods of Kontoni, alt. 10,000 ft., Delavay 2792.

Distribution: Bengal, Watt 5442 (type! ♂ in Herb. Edinb.), Sikkim, J. D. Hooker (type! ♂ ♀ in Herb. Kew, Herb. Berlin).

108. **Salix cinerea** Linnaeus Sp. 1021 (1753). — Andersson Monog. Salic. 71 (1867) Taf. IV. fig. 44. — Léveillé in Bull. Bot. France LVI (1909) 298. — Schneider in Sargent, Pl. Wils. III (1916) 148.

Shrub with pubescent branches; leaves ovate-oblong to obovate, abruptly broader above the middle, margin serrate, acute or obtuse at apex, attenuate at base, sparingly pilose above, much villous below, 5—10 cm long, 2—4,5 cm broad; petioles pubescent as branchlets, 6—10 mm long; stipules reniform; staminate catkins densely flowered, with 3—4 small much hairy leaves (5—7 mm long) at the base, 2—2,5 cm long, 1—1,2 cm thick, bracts elliptic long hairy, filaments glabrous or pilose at base to 8 mm long, rachis villous; pistillate catkins densely flowered, 5 cm long, 2 cm thick; bracts elliptic oblong, pilose, ovary densely villous, without style, stigma 2 oblong about 1 mm long; pedicel elongated pilose; capsule about 10 mm long pubescent.

Amur and Manchuria (ex Schneider). Kirin: O mu hsien, hill side, leaves maximus, 15 cm long, 9 cm broad, 500 m, cult. H. W. Kung 1763, July 7, 1931; Huang ni ho station, small tree, Kung 1483, June 8, 1931. — Hopeh: Nui chang, W. Purdom 79. — Turkestan: kleine Almatinka bei Werug, A. Regel in 1877.

Distribution: Common in North Europe and Siberia also southward to medeteranean Sea and eastward to North America.

109. **Salix caprea** Linnaeus Sp. 1020 (1753). — Villars, Pl. de Dauph. III (1789) 774. — Andersson Monog. Salic. 75 (1867). — Burkill in Jour. Linn. Soc. XXVI (1899) 527. — Seemen Salic. Jap. 33, t. 4. D—H (1903). — Léveillé in Bull. Bot. France LVI (1909) 297. — Schneider in Sargent, Pl. Wils. III (1916) 149. — *Salix brachystachys* Franchet et Savatier, Enum. Pl. Jap. I. 460 (1875) et II. 506 (1879).

Leaves oblong-lanceolate or obovate, margin irregularly dentate-serrate, papyraceous in texture, 6—14 cm long, 3—6 cm broad, nearly glabrous above, densely long hairy or tomentose-villous espesially along

the nerves beneath, abruptly acute at apex, broad cuneate or rounded at base; young leaves tomentose beneath; staminate catkins 1,5—2 cm long, with yellowish brown long hairs, stamens to 12 mm long; pistillate catkins 6 cm long, ovary similar to that of *S. cinerea* Linnaeus but the bracts much more acute at apex; pedicels usually longer than the puberulous ovary, including ovary to 10 mm long; the leaves variable in form sometimes orbicular-cordate or quite rounded at base.

Kansu: Ho lan shan near Ning hsia, 1375—2400 m, R. C. Ching 143, May 10—25, 1923; the same locality, Ching 59, May 10—25, 1923. — Shensi: Tsin ling shan, A. David; Khin ling san, Giraldi 1160. — Hopeh: Hsiao wu tai shan, well-wooded mountain slopes, alt. 1600—2600 m, F. N. Meyer 1248. — Amur, Maximowicz. — Manchuria: Ussuri, P. Siuzev 16, 19, 27, 28, 35, 65, 103; Bertels 13, 11, 335.

Key to varieties of *Salix caprea*.

1. Leaves ovate, margin dentate, rounded at base, obtuse at apex, 7—10 cm long, 5—6 cm broad. — var. *dentate* Hao.
1. Leaves narrow- or rhombic-lanceolate, margin entire, attenuate at base, acute at apex, 35—60 mm long, 15—25 mm broad.
   2. Pedicel 2,5—3 mm long, capsule 8—9 mm long — var. *sinica* Hao.
   2. Pedicel only to 0,5 mm long, capsule 4 mm long — var. *subsessilia* Hao.

Var. **dentata** Hao n. var.

Small tree with pubescent branches; leaves ovate, subrounded at base, obtuse or acute at apex, margin dentate, darkgreen above, glaucous and glabrous beneath, 7—10 cm long, 5—6 cm broad; petioles nearly glabrous 8—12 mm long; pistillate catkins in fruits elongated to 6 cm long, 18 mm thick; capsule pubescent linear-oblong, about 9 mm long; pedicel pubescent slightly longer than the brown cylindrical ventral gland; bracts elliptic, both sides hairy, nearly as long as the pedicel. — Pl. XXXIII. fig. 66. Kung no. 149 (type).

Hopeh: Hsiao wu tai shan, on the moist slope, H. W. Kung 149 (type in Herb. Peiping), May 29, 1930.

Var. **sinica** Hao n. var. — *Salix philicifolia* Rehder in Jour. Arn. Arbor. IV (1923) 142 non Linnaeus. — *Salix Wallichiana* Rehder in Jour. Arn. Arbor. IV (1923) 143 non Andersson.

Branches pupescent when young becoming glabrous, leaves entire or nearly so, attenuate at base, acute at apex, lower side glabrous or glaucous, except the young ones of which the lower side is usually pubescent, upper side dark green glabrous, 35—60 mm long, 15—25 mm broad, the larger ones to 8 cm long, 32 mm broad, rhombic-lanceolate or narrowly lanceolate; petioles glabrous or slightly pubescent; catkins sessile in fruits to 8 cm long, about 2 cm thick, ovary pilose linear-oblong, pedicel 1/3 as long as the ovary, pubescent, only ventral gland present, bracts elliptic ovate at apex hairy and ciliate; capsule pilose about 8—9 mm long, 1,5—2 mm across. — Pl. XXXIV. fig. 67. Liou no. 49 (type).

Hopeh: Hsiao wu tai shan, H. W. Kung 150, May 29, 1930; the same locality, Kung 69, 151, May 1930; Lei shui hsien, alt. 1100 m,

arbre de 5—8 metres, K. M. Liou 2220, May 30, 1934; the same locality, K. M. Liou 2240, May 31, 1934; Wu ling shan, alt. 1270 m, Liou 49, May 31, 1931; Y hsien, Yüan mon shan, 730 m, Liou 2095, May 22, 1934; Bo hua shan, 1900 m, Hsia 2214, July 22, 1930; Ling shan kou, in Cho lu hsien district, 1680 m, 9—12 ft. tall, Hsia 2537, September 10, 1930. — Shensi: Zu lu, G. Giraldi 5357; Huan tou san, Giraldi 5358; Khin ling san, Giraldi 1160; Lao y san, Giraldi 5360; Chung nan shan, 1400 m, open slope, Kung 2585, June 2, 1933; Tai pai shan, T. P. Wang 1295, July 2, 1933. — Honan: Yu chai shan, 1000 m, Hao 3673, July 3, 1932. — Inner Mongolia: Wu la shan, 1800 m, 10—12 ft., Hsia 3160, August 18, 1931; Wu ta chao, 2000 m, Hsia 3054; the same locality, 1600 m, Hsia 2928, August 4, 1930; Ta ching shan, 1300 m, Hsia 2852, July 24, 1931. — Hupeh: Tan scian, P. C. Silvestri no. 3397, March 1912. — Chakar: Yü hsien, 1650 m, Liou 2398, June 13, 1934.

Var. **subsessilia** Hao n. var.

Small tree with glabrous purplish branches; leaves oblong-lanceolate, acute at apex, rounded or attenuate at base, upper surface green glabrous except along the middle nerves, lower surface glaucous sparingly hairy when young, 35—55 mm long, 10—25 mm broad; catkins subsessile 3—5 cm long, 5—7 mm thick; rachis pilose; stamens 2, ventral gland cylindrical about ½ as long as the bracts, filaments glabrous 3—4 times as long as the bracts; bracts hairy without, nearly glabrous within; ovary pilose subsessile; bracts without distinct style, stigma 2 quite short; capsule pilose, elliptic oblong obout 4 mm long.

Chakar: Yü hsien, Liou 2405 (type ♂♀ in Herb. Peiping), June 13, 1934.

110. **Salix Wallichiana** Andersson in Jour. Linn. Soc. IV (1860) 50. — Andersson Monog. Salic. (1867) 80, taf. V, fig. 46. — Brandis, Forest Fl. Brit. Ind. 468, t. 61 (1874). — Hooker f., Fl. Brit. Ind. V (1888) 628. — Collett, Fl. Siml. 478 (1902). — Léveillé in Bull. Bot. France LVI (1909) 301. — Schneider in Sargent, Pl. Wils. III (1916) 64. — Pax et Hoffmann in Fedde, Rep. Beih. XII (1922) 353. — Handel-Mazzetti Symb. Sinic. VII (1929) 87. — *Salix grisea* Wallich, cat. no. 3700 (1828). — *Salix pachyclada* Léveillé in Fedde, Rep. III (1906) 22. — Léveillé in Bull. Bot. France LVI (1909) 300. — *Salix funebris* Léveillé in Fedde, Rep. XII (1913) 287. — *Salix Mairei* Léveillé in Fedde, Rep. XIII (1914) 342. — *Salix etosia* Schneider in Sargent, Pl. Wils. III (1916) 73.

Shrub; branches soft pilose; leaves obovate-elliptic to oblong-lanceolate rarely ovate, 4—10 cm long, 1—2,5 cm broad, both sides densely pilose or tomentose espesially so when young and as well on the lower surface; staminate catkins slender elongated to 2,5—4 cm long, 1,3 cm thick, usually sessile, filaments about 10 mm long glabrous rarely pilose at base, peduncle not distinct sometimes with 1—2 small leaves, ventral gland rather broad and short; bracts densely silky on the inner side and along the margin and well hairy without; pistillate catkins sessile, ovary linear-oblong without style between the ovary and the 2 small stigma; bracts like those of the male flower; capsule pilose sessile about 9 mm long.

Kweichow: Montée de Sa jang à Pia-fong, J. Esquirol 368 (typo! ♂ of *S. pachyclada* Léveillé), March 4, 1905. — Yunnan: Rochers de Pai pon, alt. 2500 m, E. E. Maire 310, 614, 652 (type! of *S. Mairei* Léveillé); eastern slopes of Likiang Snow Range, J. F. Rock 9818; woods of Kontoni, alt. 10,000 ft., Delavay 2792; Saewin divide, Forrest 16199, February 1918; Shweli River drainage basin and environs of Teng yueh, Rock 7946, February 1923; between Teng yueh and Likiang, Rock 8100, March 1923; without locality, E. E. Maire 604. — Hupeh: Patung hsien, alt. 1300—2000 m, Wilson 2112 (type! ♀ of *S. etosia* Schneider); Ichang, A. Henry 334, 1283. — Szechuan: Kuan hsien, Pass yang tze ling, in Min Tal, alt. 1400 m, Limpricht 1301; between Kalapa et Liuku, alt. 3200 m, Schneider 1277, 1280, May 17, 1914; westlich von Te chang, Schneider 735, April 5, 1914; Urwald bei Lang pa in Lololand, baum bis 10 m. Schneider 1055, April 25, 1914; Ning yüan fu, Lololand, zwischen Alami und Szegueh, bei Lo lo ku, baumartiger Strauch 4 m, Schneider 934, April 21, 1914. — Honan: J. Hers 918.

Distribution: Kamoan, Wallich 3700a, 3700b (type! ♂ of *S. grisea* Wallich), Nepal, Wallich 3700 (type! ♂ ♀ of *S. grisea* Wallich) and Himalaya.

Sect. 24. **Daltonianae** n. sect.

Leaves obovate-elliptic to oblong-lanceolate, 4—10 cm long, 1—2,5 cm broad, both surfaces tomentose or pilose, at least so on the lower side; branches tomentose; catkins slender elongated up to 7—10 cm long, terminal at branches, with several normal leaves at the base; both male and female flowers having one ventral gland; style elongated with slender stigma; ovary sessile pilose or tomentose (except *S. praticola* Handel-Mazzetti).

111. **Salix Daltoniana** Andesson in Jour. Linn. Soc. IV (1860) 49. — Hooker f., Fl. Brit. Ind. V (1888) 632. — Burkill in Jour. Linn. Soc. XXVI (1899) 528. — Brandis, Ind. Trees (1908) 637. — Léveillé in Bull. Bot. France LVI (1909) 298. — Schneider in Sargent, Pl. Wils. III (1916) 115.

Small tree; branches nearly blabrous; winterbuds densely long hairy, about 5 mm long; leaves broad lanceolate, upper surface sparingly pilose, lower side brown tomentose, 5—10 cm long, 15—25 mm broad, margin crenulate or nearly entire, acute at apex, attenuate at base; petioles 6—12 mm long, densely pilose; staminate catkins to 5 cm long, rachis quite pilose; bracts cuneate, glabrous without, 1/3 as long as stamens; stamens 2, densely hirsute below the middle, anthers yellow orbibular; pistillate catkins subspreading, 8—12 cm long, 8 mm thick, bracts spathulate both sides hirsute irregularly lobed at apex 1/2 as long as ovary; ovary short pubescent sissile, style elongated, stigma deeply divided to the middle of the style; capsule pubescent.

Yunnan: near Lan kong, Delavay.

Distribution: Sikkim, J. D. Hooker (type! ♂ ♀ in Herb. Kew; Herb. Berlin).

Var. **Franchetiana** Burkill in Jour. Linn. Soc. XXVI (1899) 528. — Léveillé in Bull. Bot. France LVI (1909) 298. — Schneider in

Sargent, Pl. Wils. III (1916) 115. — *Salix Franchetiana* Handel-Mazzetti Symb. Sinic. VII (1929) 67.

„Arbuscula amoena, 6—10 ped. alta. Folia infra pilis longis lacte sericea, nec vel in petiolo tantum rufescentia."

Szechuan: Mupin, David (type ex Burkill); Ta chien lu, Mussot 348 (type ex Burkil).

I have not seen the type of this variety, by the short description of Burkill I can not say it is a distinct form from the type.

112. **Salix salwinensis** Handel-Mazzetti ex Enander in Anz. Akad. Wiss. Wien. Math.-Nat. 1926, LXIII. 95.

Erect shrub with pubescent branches; leaves lanceolate, pubescent above, tomentose to silky pilose beneath, both ends acuminate, margin entire; staminate catkins sessile about 3 cm long, 7 mm thick, filaments 2 pilose, ventral gland present flat about 1/4 as long as bracts; bracts elliptic, villous and ciliate, ovate or somewhat incised at apex, about 1/2 as long as filaments; pistillate catkins 5—8 cm long, with 2—3 small margin entire leaves at base; ventral gland 1/3 as long as bracts; ovary villous sessile, style slender with 2-lobed stigma; bracts retuse at apex, white densely villous without and nearly glabrous within. — Pl. XXXIV. fig. 68. Handel-Mazzetti no. 8956 (type).

Yunnan: Likiang, alt. 3200—3700 m, Handel-Mazzetti 8956 (type! ♀ in Herb. Wien), June 18, 1916; the same locality, 3600 m, Handel-Mazzetti 8354, September 23, 1915; Likiang, 3200—3700 m, Handel-Mazzetti 8957 (type! ♂ in Herb. Wien).

Distribution: Sikkim, J. D. Hooker and Thomson.

113. **Salix praticola** Handel-Mazzetti ex Enander in Anz. Akad. Wiss. Wien. Math.-Nat. 1926. LXIII. 95.

Buds, young branches and lower side of leaves all tomentose; leaves dark green with hairy middle nerves above, oblong-lanceolate, margin glandular serrate; staminate catkins elongated to 10 cm long, rachis villous; ovary glabrous, with short style and short stigma, densely hairy only at the base; ventral gland cylindrical 1/3 as long as bracts; bracts orbicular, about 1/2 as long as the ovary, long hairy within, sparingly pilose without; capsule glabrous sessile about 3,5 mm long. — Pl. XXXV. fig. 69. Handel-Mazzetti no. 10586 (type).

Kweichow: Lungli, alt. 1000 m, Handel-Mazzetti 10586 (type! ♀ in Herb. Wien); Nganpin, alt. 1400 m, Handel-Mazzetti 10474 (type! ♀ in Herb. Wien), June 26, 1917.

114. **Salix driophila** Schneider in Sargent, Pl. Wils. III (1916) 59.

Shrub 1,5—3 m tall; branches villous or tomentose when young, glabrous at maturity; buds ovate compressed, slightly pilose, yellowish brown; leaves ovate, elliptic to obovate-oblong, rounded at base, acute at apex, green and more or less tomentose above, densely tomentose beneath, nerves prominent, margin entire, 3—5 cm long, 1—1,5 cm broad, the larger ones to 4 cm long, and 2 cm broad; petioles 3—6 mm long, sericeous or tomentose, sulcate above; catkins pedunculate 4—10 cm long, 8—9 mm thick, densely flowered, peduncle about 1,5—2,5 cm long villous; stamens 2, filaments pilose below the middle,

2 times as long as bracts, with yellow oval anther; ventral gland oblong, thick, bracts pilose on both sides; ovary sessile villous ovate, style bifid at apex with short oblong stigma; capsule not known. — Pl. XXXV. fig. 70. Wilson no. 2123 (type).

Szechuan: Mupin, 2300—2600 m in altitude, Wilson 2150 (co-type! ♂ in Herb. Arn. Arbor.); Chih ting shan, Wilson 2123 (type! ♀ in Herb. Arn. Arbor.), May 23, 1908; Ching chi hsien, 6—8000 ft., Wilson 2129 ♀, June 1908.

Sect. 25. **Doliae** Hao n. sect.

Erect shrubs, with oval to linear leaves; catkins short cylindrical; male flowers bearing a ventral gland, filaments free, anther reddish or yellow; female flowers bearing also only one ventral gland, ovary pubescent, sessile; style short, stigma oblong; in this section 6 recorded in China.

115. **Salix resecta** Diels in Not. Bot. Gard. Edinb. V (1912) 281. — Schneider in Sargent, Pl. Wils. III (1916) 121. — Handel-Mazzetti Symb. Sinic. VII (1929) 81.

Shrub 1,2—1,8 m tall; branches lustrous; leaves short-petiolate, elliptic or oblong, pilose espesially along the nerves when young, lustrous and glabrous above, quite glaucous beneath, obtuse at base, obtuse or short acuminate at apex, 2,5 cm long, 13 mm broad; staminate catkins to 3 cm long, 5 mm thick; glands 2, 1/2 to 3/4 as long as bracts, cylindrical-conic, the ventral one somewhat broader; stamens 2, free, filaments thick 2 times as long as bracts, anthers globose yellow; pistillate catkins 5—9 cm long, short pedunculate or subsessile, densely flowered, with normal leaves at the base; bracts pilose, truncate at apex, 1/2 as long as ovary; capsule subsessile, conic ovoid, loosely silky; style rather long, most cleft at apex, with short bifid stigma, 1—1,2 mm long; gland narrow conic 0,7—0,8 mm long. — Pl. XXXVI. fig. 71. Forrest no. 4602 (type).

Yunnan: Tali Range, G. Forrest 4602 (type! ♀ in Herb. Berlin, Herb. Kew); Tali, 2850—3600 m, Handel-Mazzetti 8718 ♂ ♀.

116. **Salix Wuiana** Hao n. sp.

Erect shrub; last year branches purplish red, lustrous glabrous; young branches pubescent; buds orbicular reddish in colour very small only 1,5 mm in diameter, glabrous; leaves rhombic-ovate, 15—35 mm long, 10—25 mm broad, acute at apex, light green above, more or less hairy on the lower surface when young; petioles about 5 mm long, glabrous or pubescent; pistillate catkins subsessile, 4—5 cm long, about 6 mm thick; bracts rounded long hairy without, nearly glabrous within; ventral gland cylindrical, ovary short pedicelled pubescent, style short, stigma oblong. — Pl. XXXVI. fig. 72. Purdom no. 979 (type).

Shensi: Tai pai shan, W. Purdom 979 (type ♀ in Herb. Arn. Arbor.), in 1910; the same locality, W. Purdom 1108 (type ♀ in Herb. Berlin), in 1910. — Kansu: Toul ping, near Lichen, alt. 2150—2950 m, R. C. Ching 425, July 7—9, 1923.

117. **Salix wolohoensis** Schneider in Bot. Gaz. LXIV (1917) 140, fig. D 1—5. — Handel-Mazzetti Symb. Sinic. VII (1929) 73.

Erect shrub only to 2 m tall; branches tomentose when young becoming glabrous and olive-brown in colour; buds of leaves ovate short pilose, about 4 mm long; leaves lanceolate or elliptic-lanceolate, acute or obtuse at apex, broad cuneate or rounded at base, 3—4 cm long, 1—1,5 cm broad, pilose above, quite tomentose beneath, margin entire or slightly indistinctly glandular-denticulate, petioles 2—4 mm long tomentose; stipules 2—3,5 mm long, semicordate, as pilose as leaves; staminate catkins not known; pistillate catkins in fruits to 4 cm long, 8 mm thick, rachis villous, ovary ovate densely white villous sessile, style short entire with 4 oblong stigma; ventral gland 1/3 as long as ovary, truncate or retuse at apex; bracts broad obovate orbicular, subretuse at apex, 1/2 as long as ovary, quite brown in colour, subglabrous within and pubescent without, with long hairs along the margin; capsule about 5 mm long. — Pl. XXXVII. fig. 73. Schneider no. 3490 (type).

Szechuan: Yen yüan hsien, inter Wo lo ho et Hu ma ti, alt. 2000—2300 m, Schneider 3490 (type! ♀ in Herb. Arn. Arbor., Herb. Berlin).

118. **Salix Balfouriana** Schneider in Bot. Gaz. LXIV (1917) 137. fig. B. 1—4. — Handel-Mazzetti Symb. Sinic. VII (1929) 74.

Erect shrub up to 6 m tall; branches densely white tomentose; buds densely villous; leaves broad elliptic or elliptic-oblong, short acute at apex, rounded or cordate at base, 6—8 cm long, 2—3 cm broad, the larger ones to 12 cm long, 4—8 cm broad, loosely hairy and green above, white densely villous beneath, margin entire, petioles 6—15 mm long pilose; stipules indistinct; staminate catkins to 3,5 cm long, 6 mm thick, peduncle about 10 mm long, rachis densely short hirsute; bracts obovate, about 3 mm long, densely hairy without; glands 2, to 1 mm long, the dorsal one narrower and longer; stamens 2, free, 6 mm long, almost wholly dense-villous; pistillate catkins in fruits to 8 cm long, 10 mm thick, rachis dense-villous; ovary ovate-oblong, sessile densely white-villous; style distinct, 1/4 as long as ovary, deeply divided to the base into 2 bifid stigma, ventral gland ovate-triangular; bracts elliptic-orbicular, both side villous, 1/3 as long as ovary; capsule about 7 mm long. — Pl. XXXVII. fig. 74. Schneider no. 2059 (type).

Yunnan: Lichiang fu, Schneider 2059 (type! ♀ in Herb. Berlin, Herb. Arn. Arbor.), July 30, 1914; between Hohsi and Te li pu, alt. 2000 m, Schneider 1124 (co-type!), May 7, 1914; Yangtze watershed, district of Likiang, eastern slope of Likiang Snow Range, J. F. Rock 3683, May-Octomber 1922; Yü lung shan, near Likiang, 3325—3600 m, Forrest 10243.

119. **Salix inamoena** Handel-Mazzetti Symb. Sinic. VII (1929) 69. Taf. I. Abb. 14 et 15. — *Salix elegans* Burkill in Jour. Linn. Soc. XXVI (1899) 528 non Wallich.

Small shrub with erect stout and glabrous branches; buds ovoid about 4 mm long; leaves elliptic, 13—25 mm long, those on the peduncle somewhat smaller and narrower, rounded or subrounded at both ends, margin more or less denticulate, the small ones quite entire, lustrous green above, glaucous beneath, sparingly hairy above,

densely whitish yellow pilose beneath espesially when young; petioles short as pilose as the lower side of the leaves; catkins appearing nearly at the same time; staminate catkins 15—20 mm long, cylindrical, 3—4 mm thick, densely flowered, rachis villous, bracts suborbicular about 1 mm long brown and glabrous; stamens 2, 2 times as long as the bracts, pilose; only one ventral gland (ex Handel-Mazzetti, Floris ♂ glandulae 2); pistillate catkins 1—1,5 cm long; bracts ovoid, acute at apex, glabrous without, but slightly hairy at base; one ventral gland about 0,5 mm long, oblong; ovary sessile densely silky, about 2 mm long, style short, stigma capitate indistinctly bifid; capsule ovoid, 3,5 mm long. — Pl. XXXVIII. fig. 75. Schoch no. 25 (type).

Yunnan: Yunnan fu, alt. 2100 m, O. Schoch nos. 25 ♂ et 26 ♀ (type! in Herb. Berlin, Herb. Wien), April 27, 1916; rives du Niou lou kiang, alt. 1800 m, Maire 3712; eastern slope of Likiang Snow Range, Rock 8221; between Teng yueh and Likiang, Rock 8140, March 1923; Hsi shan bei Yunnan fu, Handel-Mazzetti 6010 (type! ♂ in Herb. Wien); the same locality, 2500—2600 m, Maire 1490 (type! ♂ in Herb. Wien), 7350, Duclouy 671, J. F. Rock 8140, Handel-Mazzetti 11105 etc.

120. **Salix dolia** Schneider in Sargent, Pl. Wils. III (1916) 65.

Shrub 6—9 cm tall; branches glabrous or nearly so, purplish; buds ovate purplish brown; leaves elliptic-lanceolate, obtuse or acute at apex, attenuate at base, margin entire; staminate catkins ovate-cylindrical, densely flowered, sericeous-villous, 1—2 cm long, 1 cm thick; stamens 2, filaments pilose below the middle; ventral gland oblong, 1/3 as long as bracts; bracts elliptic, subacute or obtuse, 1/2 as long as the filaments, both sides pilose; pistillate catkins about 10 mm long sessile, ovary sessile short pubescent ovate; style rather long, 1/2 as long as ovary, with 2-lobed stigma. — Pl. XXXVIII. fig. 76. Wilson no. 2133 (type).

Szechuan: west of Kuan, alt. 3300 m, Wilson 2133 (type! ♂ ♀ in Herb. Arn. Arbor.), 2133a (type! ♂ in Herb. Arn. Arbor.).

Sect. 26. **Viminales** Bluff et Fingerhutt in Camp. Fl. Germ II 562 (1825). — Schneider in Sargent, Pl. Wils. III (1916) 157.

Trees or shrubs with flexible branches; leaves narrowly or broadly elongated lanceolate; catkins flowering not at the same time, sessile or short pedunculate, usually headlike or elongated-cylindrical, 5—20 mm long, densely flowered; stamens 2, filaments free glabrous with golden anther, one ventral gland; female flowers bearing also one gland; ovary sessile or pedicelled, densely pilose, style elongated, stigma entire bifid.

121. **Salix flavicans** (Andersson) Hao no. nom. — *Salix repens* var. *flavicans* Andersson in De Cadolle, Prod. XVI. pt. 2, 238 (1868) — *Salix repens* var. *brachypoda* Trautvetter et Meyer in Middend. Sib. Reise II. 2, 79 (1856). — *Salix repens* var. *fusca* Trautvetter in Herb. Berlin.

Small shrub with slender branches which are usually reddish yellow and glabrous; buds semiovate glabrous; leaves elliptic-oblong

or elliptic-lanceolate to lanceolate, margin entire revolute, glabrous green above, silbery hairy beneath, 1,5—2,5 cm long, 4—6 mm broad; stipules small lanceolate; catkins appearing before the leaves; staminate catkins sessile, oblong-cylindrical densely flowered, with golden about 10 mm long dense hairs; bracts blackish, also with golden hairs; filaments glabrous, 3 times as long as bracts, ventral gland cylindrical thickened at apex 1/4 as long as bracts, the hairs along the bract-margin nearly as long as the bract itself; pistillate catkins sessile or nearly so, with golden hairs, about 10 mm long; bracts obovate or orbicular, yellowish hairy; ovary pilose short pedicelled, style short with two 2-parted spreading stigma, ventral gland slightly shorter than the pedicels.

Manchuria: Amur, Maximowicz. — Pamir, alt. 3800 m, 1 — 2 m tall, Paulsen 812.

122. **Salix Schwerinii** Wolf in Mitt. Deutsch. Dendrol. Ges. (1929) 407. — Wolf in Bull. Jard. Bot. Princ. URSS, XXVIII (1929) 421.

Tree or shrub up to 10 m tall with spreading branches; leaves linear-lanceolate, margin entire and revolute, dark green shinining pilose along the nerves above, 12—22 cm long, 10—15 mm broad, petioles short puberulous 5—8 mm long; stipules subulate-lanceolate margin glandular; pistillate catkins cylindrical densely flowered, 20—24 mm long, 5—6 mm thick, short pedunculate; bracts oblong-ovate acute at apex, with white pilose on the outer side, as long as the ovary or slightly longer; ovary conic-ovate sessile white pilose; style elongated slender somewhat longer than that of *S. viminalis* Linnaeus; stigma linear entire divided horizontal spreading shorter than the style; staminate catkins not known.

Manchuria and Amur (ex Wolf).

123. **Salix viminalis** Linnaeus Sp. 1021 (1753). — Villars Pl. de Dauph. III 785 (1789). — Turczaninow Fl. Baical.-Dahur. III fasc. I. 105 (1856) — Cusin, Herb. Fl. France XX (Salicinées) t. 18 (1876). — Hooker f., Fl. Brit. Ind. V (1888) 631. — Burkill in Jour. Linn. Soc. XXVI (1899) 534. — Léveillé in Bull. Soc. Bot. France LVI (1909) 301. Schneider in Sargent, Pl. Wils. III (1916) 157. — Rehder in Jour. Arn. Arbor. IV (1923) 144. — *Salix dasyclados* subsp. *stipularis* Seemen in Ascherson et Graebner, Syn. Mitteleur. Fl. IV. 180 (1909). — *Salix stipularis* Smith, Engl. Bot. XVII. t. 1214 (1803). — Schneider in Sargent, Pl. Wils. III (1916) 159. — *Salix dasyclados* Seemen apud Siuzev in Trav. Mus. Bot. Akad. Sci. St. Pétersbourg IX. no. 2 (1912).

Small tree with glabrous branches; stipules linear if present; leaves linear entire to 15 cm long, and 8 mm broad, silky pilose on the lower side, nearly glabrous above; staminate catkins 15—20 mm long, bracts long hairy, both filaments and anthers golden in colour; pistillate catkins 1—2 cm long in fruits up to 5 cm long, bracts ovate adnate at ovary-base, ciliate with brown hairs; ovary subsessile short pilose, style about 2,5 mm long deeply divided into 2 stigma, stigma linear about 1,5 mm long; capsule to 8 mm long, seed-hairs densely compressed.

Turkestan: Talkischlucht, A. Regel, July 18, 1877; Tschatkal, A. Regel, August 15, 1876; Kuenluen Gebirge, Khotan, Schlagintweit 12745, August 28—30, 1856. — Hopeh: Hsiao wu tai shan, J. Hers 1493. — Tibet: West Himalaya, Schlagintweit, 5204. — Kirin: Huang ni ho station, 500 m, Kung 1531, June 12, 1931. — Manchuria: Amur, Maximowicz; Ussuri, Siuzev 3, 4, 9, 10, 11 and Bertels 26, 29, 333; without locality, Bohnhof 88.

Distribution: also north eastern Asia to Europe.

124. **Salix lamashanensis** Hao n. sp.

Small tree; branches blackish glabrous; leaves spathulate lanceolate, margin revolute, remotely serrate, acute at apex, narrow attenuate at base, upper surface green glabrous, lower surface palish green, 4—6 cm long; catkins sessile headlike, with one small entire leaf at the peduncle; bracts elliptic-oblong, 1/2 as long as the ovary, outer side sparingly pilose, glabrous within; ventral gland cylindrical; ovary sessile pubescent ovoid-ovate, style short with indistinct stigma. — Pl. XXXIX fig. 77. Hao no. 650 (type).

Kansu: Minchow, Lamashan, alt. 3500 m, Hao 650 (type ♀ in Herb. Peiping), July 5, 1930.

125. **Salix subopposita** Miquel in Ann. Mus. Lugd.-Bat. III (1867) 28. — Franchet et Savatier, Enum. Pl. Jap. I (1875) 461. — *Salix repens* var. *subopposita* Seemen Salic. Jap. 35, Tafel 5, A—E (1903). — *Salix sibirica* var. *subopposita* Schneider in Sargent, Pl. Wils. III (1916) 154.

Branches with white dense long hairs; winter-buds brown grayish hairy; leaves lanceolate to linear-lanceolate to 5 cm long, 6—8 mm broad, narrowly acute at both ends, margin entire, dark green glabrous above, silky beneath (young leaves quite densely silky); stipules well developed lanceolate; staminate catkins appearing before the leaves, erect, short pedunculate, to 2,7 cm long, 6 mm thick, rachis hairy; bracts oblong, ovate at apex, about 1/4 as long as filaments, both sides hairy; stamens 2, filaments glabrous, ventral gland oval 1/3 as long as the bracts; pistillate catkins appearing before the leaves, short pedunculate, to 2 cm long, 10 mm thick, rachis hairy; bracts oblong-ovate, long hairy along the margin, more or less longer than the pedicels, ovary pilose, style short with slender stigma, ventral gland 1/3 as long as the pedicel.

Manchuria: Ussuri, Siuzev nos. 31, 32, August 29, 1905; the same locality, Siuzev 63, August 1905.

Distribution: Japan, Siebold and Pierot (type! ♂ ♀ in Herb. Batav.; Herb. Berlin).

126. **Salix repens** Linnaeus Sp. 1020 (1753). — Villars Pl. de Dauph. III. 767 (1789). — Turczaninow Fl. Baical.-Dahur. III. fasc. I. 113 (1856). — Andersson Monog. Salic. 113, Taf. VI. fig. 64 (1867).

Dwarf shrub with prostrate branches; leaves variable in form, linear-oblong to obovate-elliptic, nearly glabrous above, finely silky beneath espesially so when young, 1—2,5 cm long, 5—15 mm broad, acute or ovate at apex, attenuate at base; staminate catkins sessile

with golden filaments and golden anther; stamens 2, free, quite glabrous, 2—4 times as long as the bracts; bracts densely pilose without, scarcely hairy within; pistillate catkins sessile, with silky rachis, 1—1,5 cm long, 8 mm thick; bracts spathulate ovate, as long as the pedicel, as pilose as that of the male flowers; only ventral gland present cylindrical 1/3 as long as pedicel; ovary villous, style slender with two bifid reflexed stigma; capsule villous pedicelled attenuate at apex.

Hopeh: Lei yüan hsien, 1500 m, K. M. Liou 2420, June 13, 1934. — Turkestan: A. Regel, in 1876. — Manchuria: vallis fluvis Chingan, Provincia Amurensis, V. Komarov 478.

127. **Salix Starkeana** Willdenow Sp. IV. 677 (1805). — Schneider in Sargent, Pl. Wils. III (1916) 151. — *Salix livida* Wahlenburg, Fl. Lapp. 272 (1812). — *Salix depressa* Fries, Nov. Fl. Suec. Mant. I. 56. — *Salix vagans* Andersson in Öfs. Vetensk. Akad. Förh. (1858) 121. — *Salix livida* var. *Starkeana* Toepffer, Salicol. Mitt. no. 4, 215 (1911).

Shrub 1—2 m tall with glabrous purplish branches; leaves elliptic to ovate-oblong, glabrous on both sides, glaucous with yellowish elevated nerves below, rounded or obtuse at apex, rounded also at base, 3—6 cm long, 12—35 cm broad; stipules reniform irregularly dentate, lower side as glaucous as the leaf; staminate catkins 1,5 cm long, erect; stamens 2, with glabrous filaments, 4—5 times as long as the elliptic glabrous long ciliate bracts, rachis sparingly pilose; pistillate catkins sessile, about 1—1,2 cm long, in fruits to 5 cm long, bracts lanceolate, pilose without, 1/2 as long as the ovary; ovary linear-lanceolate, densely white pubescent, without distinct style; stigma 2, every one distinctly 2-lobed; those leaves at the base of catkins small lanceolate about 8 mm long, long ciliate, with silky hairs below; capsule to 9 mm long, acuminate toward apex, pubescent, pedicel pilose 4 mm long.

Manchuria (ex Schneider).

Common in north Europe, rare in north Asia.

Var. **cinerascens** (Wahlenburg) Schneider in Sargent, Pl. Wils. III (1916) 151. — *Salix livida* var. *cinerascens* Wahlenburg, Fl. Lapp. 275 (1812).

Differs from the type in the pubescent young branchlets and the pubescence of both surfaces of the leaves.

Amur: Amur River, R. Maack 126 in 1865.

Distribution: from Transbaikalia to Kamtschatka and Korea.

128. **Salix rorida** Lackschewitz in Shedae Herb. Fl. Ross. VII (1911) 131. — Toepffer, Salicol. Mitt. no. 5, 238 (1912). — Schneider in Sargent, Pl. Wils. III (1916) 155. — *Salix coerulescens* Turczaninow, Pl. Exsicc. ann. 1828. non Doell. — *Salix acutifolia* Ledebour, Fl. Ross. III. pt. 2, 601 (1850) non Willdenow. — *Salix daphnoides* Ledebour, Fl. Ross. III. pt. 2, 602 (1850) non Villars. — *Salix praecox* Trautvetter et Meyer in Middendorff, Reise Sibir. I. pt. 2, Bot. Abt. 2, 78 (1856) non Hoppe.

Shrub with slender glabrous dark purple branches; buds glabrous; leaves lanceolate, both ends acute, 12—23 mm broad, 5,5—10,5 cm

long, margin regularly glandular-serrate, green above, glaucous below, nerves slightly elevated; stipules ovate or reniform, glandular-serrate as long as petiole, petioles 3—6 mm long; pistillate catkins flowering before the male one, sessile, cylindrical, 3—3,5 cm long, 10—12 mm thick, with villous rachis; bracts oblong, acute, margin glandular-crenulate toward the base, both surface long villous; ovary ovate-conic pedicelled, glabrous; style elongated 1—1,5 mm long, stigma linear-oblong more or less spreading; capsule at maturity 4—6 mm long; staminate catkins 18 mm long, 18 mm thick, headform; bracts obovate acuminate 2-lobed at apex, margin entire, villous; stamens 2, glabrous, to 8,5 mm long, with yellow and ovate anthers.

Manchuria: Ussuri, P. V. Siuzev 38, 42, 48, May 1905; voyage an lac Hanka et en Mandchourie, M. Hugo Bohnhof ♂ ♀, in 1898—1899; without locality, Bertels 14.

Distribution: Siberia, near Irkutzk, Balagansk, N. Malizeff (type! ♂ ♀ in Herb. Petr.), May 2, 1902.

129. **Salix opaca** Andersson apud Seemen, Salic. Jap. 51, t. 10, fig. A—F (1903). — Schneider in Sargent, Pl. Wils. III (1916) 159. — *Salix stipularis* Trautvetter in Mém. Sav. Etr. Acad. Sci. St. Pétersbourg, IX. 243 (1859) non Smith. — *Salix viminalis* Komarov in Act. Hort. Petrop. XXII (1903) 32 non Linnaeus.

Leaves linear-lanceolate to lanceolate, to 15 cm long, 3,5 cm broad, both ends acuminate, margin irregularly crenuate, dark green above, glaucous beneath; stipules serrate orbicular or reniform; petioles 5—8 mm long; catkins appearing before the leaves; staminate catkins subsessile, 3,5 cm long, 12—18 mm thick, densely flowered, rachis hairy; bracts oblong, long hairy; filaments 2, 4—6 times as long as bracts; gland narrow toward the apex, $^3/_4$ as long as bracts; pistillate catkins sessile, at the base with small leaves which are lanceolate and silky, 3 cm long, 7 mm thick, rachis densely pilose; bracts ovate to oblong, ovary pubescent, style and the 2-lobed stigma about equal in length, ventral gland oblong glabrous as long as the pedicel.

Amur, Maximowicz.

Distribution: Altai and Japan.

130. **Salix Siuzevi** Seemen in Fedde, Rep. V (1908) 17. — Léveillé in Bull. Bot. France LVI (1909) 300. — Siuzev in Trud. Bot. Mus. (Trav. Mus. Bot. Acad. Sci. Pétersbourg) IX. 92 (1912). — Schneider in Sargent, Pl. Wils. III (1916) 160.

Branches quite glabrous; buds oblong puberulous; leaves lanceolate 8—13 cm long, about 12—17 mm broad, long acuminate, at attenuate into a short petiole, margin subentire or slightly serrulate, both sides glabrous, green above, glaucous beneath, lateral nerves prominently elevated espesially on the lower surface; stipules linear, more or less serrulate; staminate catkins flowering before the pistillate, oblong cylindrical, sessile, erect, about 1,5 cm long, 5—7 mm thick; bracts lanceolate, with long bear, filaments glabrous; pistillate catkins cylindrical erect, more or less curved, about 2 cm long, sessile; bracts oblong, both sides pilose; style distinct, more slender than the stigma; capsule elliptic-acute pubescent, about 4 mm long. — Pl. XXXIX. fig. 78. Siuzev 34 (type).

Manchuria: Ussuri, V. Siuzev 34 (type! ♂ ♀ in Herb. Berlin), 3 m tall, April 29, 1905; the same locality, Siuzev nos. 26, 26 bis (co-type! ♂ ♀ in Herb. Berlin), April 27, 1905; the same locality, Siuzev nos. 25, 36, April 1905. — cult. in München Botanical Garden.

Distribution: Transbaicalia, near Czita, Stukov 2488, May 17, 1910.

131. **Salix sibiriça** Pallas Fl. Ross. I. p. II. 78, tab. 81, fig. 3 (1788). — Schneider in Sargent, Pl. Wils. III (1916) 154.

Very similar to *S. repens* Linnaeus but differs in the following characters: leaves more hairy above, very thin in texture, never coriaceous, 3—7 cm long, 8—27 mm broad; filaments 5—6 times as long as bracts, rachis not so densely hairy; style and stigma much longer; bracts much longer than the pedicel.

Manchuria: Amur, Korshinski no. 5.

Distribution: Soongaria and Siberia.

Sect. 27. **Cheilophilae** Hao n. Sect.

Leaves linear 3—12 cm long, 2—5 mm broad; staminate catkins cylindrical but short only to 1—1,5 cm long, filament only one, with 1—5 small entire leaves at the base, only ventral gland present; pistillate catkins headlike or short cylindrical, also with 1—5 small leaves at base, only ventral gland present, ovary sessile pilose (except *S. microstachya*) without distinct style.

132. **Salix shansiensis** Hao n. sp.

Shrub with slender green glabrous reflexed branches; buds purplish coriaceous lustrous ovate elliptic about 5 mm long; leaves linear 10—12 cm long, 2—4 mm broad, lustrous green above, light green beneath, both surfaces glabrous, margin finely serrate, narrow attenuate into a long petiole which may be to 10 mm long; petioles glabrous yellowish.

Shansi: Chiao cheng, Yün ting shan, ad rivulum in altiputicetis, ca. 2100 m ü. M., H. Smith no. 7739. — Hopeh: I hsien, Yün mon shan, 600 m, K. M. Liou 2089, May 22, 1934.

By its much longer and much narrower leaves *Salix shansiensis* is a very distinct species, although at present we have not yet the flowering catkins.

133. **Salix linearistipularis** (Franchet) Hao n. nom. — *Salix purpurea* var. *stipularis* Franchet Pl. David. I. 284 (1884). — Burkill in Jour. Linn. Soc. XXVI (1899) 532. — Rehder in Jour. Arn. Arbor. IV (1923) 144.

Branches glabrous; leaves linear-lanceolate, both sides glabrous, more or less glaucous beneath, 7—10 cm long, 5—7 mm broad, margin serrate; petioles 4—5 mm long, glabrous and yellowish; stipules linear or linear-lanceolate, 5—12 mm long, along the margin as serrate as the leaves, catkins sessile 15—20 mm long, bracts orbicular, ovary pilose with a entire style, filament solitary, only ventral gland present; capsule sessile.

Hopeh: Yü tien hsien, F. N. Meyer 941; Bo hua shan, J. Hers 1648. — Jehol: bords desruisseaux, David 1681 (type! ♂ ♀ in Herb.

Paris). — Fengtien: near Mukden, Siuzev 118, August 10, 1905. — Shansi: Mayinghai, 5400 ft., 5—8 ft., tall, Hsia 1521, August 10, 1929. — Shensi: Yü lin, river side, alt. 1035 m, shrub, 5—8 ft. tall, Hsia 3685, July 25, 1933. — Mongolia: ordos, Aluntsaitang, sandy region, alt. 1250 m, about 16 ft., tall, Y. Y. Pai 28, August 5, 1933. — Honan: cultevated on the sandy marshy plain, east of Kai feng, J. Hers 30.

134. **Salix microstachya** Turczaninow Fl. Baical.-Dahur. II. fasc. I. 104 (1856). — Wolf in Act. Hort. Petrop. XXI. 156 (1903). — Schneider in Sargent, Pl. Wils. III (1916) 170.

Shrub up to 6 m tall; branches glabrous lustrously purplish usually slender; buds glabrous very small only to 1,5 mm long; leaves linear or narrowly lanceolate to 5 cm long, only 2—3 mm broad, margin indistinctly remotely serrate, those at base of peduncle entire, both sides scarcely silky pilose becoming glabrous during maturity, the midrib quite elevated beneath; petioles very short or wanting; staminate catkins sessile 1—1,5 cm long, loosely flowered, rachis very pilose; bracts elliptic-oblong, both sides glabrous, margin entire, about 1/2 as long as the glabrous filament; stamens adnate togather into one filament, about 2,5 mm long; ventral gland 1/3 as long as bract; pistillate catkins sessile, usually small from 9 mm to 1,5 cm long, in fruits to 3 cm long; bracts nearly as long as the ovary, elliptic-oblong, both sides glabrous, ovate or slightly crenuate along the margin, about 1,5 mm long; ovary glabrous sessile, small nearly as long as the oblong stigma, style entire; capsule glabrous about 4 mm long.

Ninghsia: Ho lan shan, alt. 1375—2400 m, R. C. Ching 70, May 10—25, 1923. — Turkestan: Tienshan, 5 m tall, Narunkolldorf, July 2, 1909; without locality, Sarokin.

Distribution: Siberia, Irkutzk, Turczaninow (co-type! ♂ ♀ in Herb. Berlin).

135. **Salix Wilhelmsiana** Marschal v. Bieberstein, Fl. Taur.-Cauc. III. Suppl. 627 (1819). — Regel in Act. Hort. Petrop. VI (1880) 464. — Wolf in Act. Hort. Petrop. XXI (1903). — Schneider in Sargent, Pl. Wils. III (1916) 153.

Leaves linear to linear-lanceolate, remotely serrate along the margin, both sides white tomentose, 4—6 cm long, 2—4—(5) mm broad, without distinct petiole; branches tomentose espesially so when young; staminate catkins slender about 15 mm long, 4 mm thick, filament glabrous, ventral gland cylindrical, rachis pilose; bracts truncate or ovate at apex, pilose near the base without, quite long hairy within, about 1/2 as long as the filament; pistillate catkins sessile, quite thick, ovary pilose sessile with short style and indistinct stigma; ventral gland 1/3 as long as the bracts; bracts similar to those of the male flowers; capsule pilose, elliptic-oblong, about 3,5 mm long.

Turkestan: Sarafschan, 5—6000 ft. in altitude, A. Regel; Kschtat near Sararaschan, A. Regel; the same locality, Sorokin; on sandy flats along Zarafshan river, near Wishist, Province of Samarkand, F. N. Meyer no. 578, July 14, 1910. — cult. Moskau Botanical Garden.

136. **Salix angustifolia** Willdenow Spec. IV. 699 (1805). — Hooker f., Fl. Brit. Ind. V (1888) 636. — *Salix mongolica* Siuzev in Fedde, Rep. XIII (1914) 328. — Schneider in Sargent, Pl. Wils. III (1916) 178. — syn. also: *Salix dahurica* Turczaninow, *Salix mongolica* Franchet.

Branches slender pubescent when young becoming glabrous; leaves linear sessile remotely serrate, 3—5 cm long, to 4 mm broad, only middle nerve distinct, both surfaces silky or densely pubescent; staminate catkins producing with the leaves, slender, 2,5—3 cm long, 4 mm thick; anther rather large 4-angular with glabrous filament; bracts glabrous reddish brown, oblong, 1/2 as long as filament; pistillate catkins sessile about 17 mm long, 10 mm thick, oblong in outline; bracts ovate glabrous also reddish brown; ovary sessile angular-ovate, about 5 mm long, without distinct style, stigma 2 reflexed, about 3 times as long as the bracts, sessile; rachis white villous.

Turkestan: Sararaschan, 5—6000 ft., A. Regel; Kiptjak, Ove Paulsen, July 24, 1899. — West-China, Karolkoff et Krause no. 73. — Turkestan: Tienshan Narunkolldorf, June 5, 1909; in Pass China ad fl. Amudana, Ove Paulsen no. 2065, July 24, 1899. — Tibet, 12000 ft., J. D. Hooker; N. W. Himalaya, 8000 ft., A. Meebold no. 1967.

Distribution: Persia, Dahurica and Caucasus.

137. **Salix cheilophila** Schneider in Sargent, Pl. Wils. III (1916) 69. — Rehder in Jour. Arn. Arbor. IV (1923). — Handel-Mazzetti Symb. Sinic. VII (1929) 87.

Erect shrub to 5,4 m tall; branches elongated pilose becoming glabrous and purplish; buds acute villous; leaves linear to linear-lanceolate, rounded at base, acuminate to mucronate at apex, sericeous-villous on both sides, nerves prominently reticulate, margin revolute, distinctly glandular-serrate toward the apex but entire near the base, 1,5—5 cm long, 3—7 mm broad, petioles 1—3 mm long villous; catkins flowering at the same time, rachis villous; staminate catkins 1,5—2,3 cm long, 3—4 mm thick, slender, densely flowered; one ventral gland, narrow oblong, bifid at apex, 1/2 as long as the bracts, filaments glabrous with golden anthers; bracts obovate-oblong, obtuse or slightly emarginate, pilose at the base; ovary sessile densely short hairy, ovate to ovate-oblong, style short or wanting with very small stigma, gland like that of male flower; bracts often truncate, 1/2—2/3 as long as the ovary; capsule about 3 mm long. — Pl. XL. fig. 79. Wilson no. 2146 (type).

Szechuan: near Monkong ting, alt. 2600—3000 m, side of river, Wilson 2146 (type! ♂ ♀ in Herb. Arn. Arbor.), 2146A (type! ♂ in Herb. Arn. Arbor.); Sungpan ting, Wilson 4567; Kalapa and Liuku, alt. 3000 m, Schneider 1287, May 17, 1914. — Yunnan: Likiang Snow Range, J. F. Rock 8332; the same locality, Rock 4553, May 1922; by streams of the Chien-chuan-Mekong, alt. 11,000 ft., Forrest 21980, August 1922. — Shansi: Feng shui ling, 5500 ft., 5—12 ft. tall, Hsia 1497, August 9, 1929; Kao ti shan, 8 ft. tall, alt. 6400 ft. Hsia 1137, June 22, 1929. — Shensi: Shang hsien, in valley,

T. P. Wang 843, September 19, 1933; Yen an, marshy place in valley, 6—10 ft. tall, Hsia 3566, June 27, 1933. — Hopeh: Huai lai hsien, Yang kia ping, J. Hers 2085; Hsiao wu tai shan, Kung 1312, Sept. 18, 1930; Bo hua shan, J. Hers 1459. — Inner Mongolia: Wu la shan, 1500 m, 10—12 ft. tall, Hsia 3108, August 21, 1931.

Sect. 28. **Gracilistylae** Schneider in Sargent, Pl. Wils. III (1916) 163.

Tall shrubs or small trees; leaves lanceolate, elliptic or obovate-lanceolate, acute or short acuminate, rarely obtuse, pilose beneath when young becoming glabrous, nerves reticulate; catkins subsessile cylindrical and densely flowered; bracts oblong, acute blackish at apex; stamens 2, filaments growing togather but the anthers distinctly separated, with narrow ventral gland; ovary sessile or pedicelled, densely villous, style slender as long as the ovary usually entire with emarginate oblong stigma; hairs on the bracts very dense nearly as long as stamens.

138. **Salix gracilistyla** Miquel in Ann. Mus. Lugd.-Bat. III 26 (1867). — Franchet et Savatier, Enum. Pl. Jap. I. 461 (1875). — Schneider, Ill. Handb. Laubholzk. I. 63, 66 (1904). — Schneider in Sargent, Pl. Wils. III (1916) 164. — *Salix Thunbergiana* Blume apud Andersson in De Candolle, Prodr. XVI. pt. 2, 271 (1868). — *Salix cinerea* Komarov in Act. Hort. Petrop. XXII. 22 (1903) non Linnaeus.

Branches pubescent or tomentose; leaves silky when young becoming glabrous, rhombic-lanceolate, narrowed at base, obtuse at apex, margin serrate, 4—7 cm long, 1,5—2 cm broad; staminate catkins sessile, elliptic in outline, about 4 cm long; stamen only one, rather glabrous, anthers ovate; bracts both sides hairy, these hairs slightly longer than the stamens, acuminate, 1/8 as long as filament; pistillate catkins sessile, 5—8 cm long; bracts acute long hairy, 1/2 as long as the ovary rarely longer; ovary densely silky sessile, style slender to 2,5 mm long with entire stigma; capsule pilose; stipules triangular rather acute.

Fengtien: Fung huang shan, Ross 16; Changdien no. 175 (ex Burkill).

Distribution: Korea and Japan.

139. **Salix myrtillacea** Andersson in Jour. Linn. Soc. IV (1860) 51. — Léveillé in Bull. Bot. France LVI (1909) 301. — Schneider in Sargent, Pl. Wils. III (1916) 71. — Handel-Mazzetti Symb. Sinic. VII (1929) 89. — *Salix subpycnostachya* Burkill in Jour. Linn. Soc. XXVI (1899) 532. — *Salix squarrosa* Schneider in Bot. Gaz. LXIV (1917) 142. fig. E, 1—5.

Dwarf shrub with stout branches, erect about 60 cm tall; leaves dense, elliptic-oblong, obtuse, cuneate or attenuate, both surfaces glabrous, more or less glaucous beneath, lateral nerves curved and paralelle, entire, about 1,5—2 cm long, 7—10 mm broad; petioles 2—4 mm long glabrous; staminate catkins elliptic 1,5—2 cm long, about 12 mm thick, densely flowered, sessile; stamens 2, growing togather each other, filament pilose near the base, anthers 2 separated; bracts oblong acute both sides long hairy; pistillate catkins densely flowered, sessile, about 18 mm long, bracts elliptic at least as long as

the ovary or slightly longer, both sides hairy; ovary ovoid sessile pilose, style rather slender as long as the ovary; stigma 2, short, indistinctly 2-parted; capsule pilose about 4 mm long.

Szechuan: Yen yüan hsien, Schneider 1246 (type! of *Salix squarrosa* Schneider); the same locality, Handel-Mazzetti no. 2369; Mount Siga, northeast of Kulu, 1,5 m tall, J. F. Rock 17887, June 1929; Ta chien lu, A. E. Pratt no. 751; the same locality, alt. 9000—13500 ft., Pratt no. 835 (type! of *Salix subpycnostachya* Burkill); Kuan hsien, Wilson 2161; valley of Jerikhon, J. D. Soulie 509. — Yunnan: eastern slope of Likiang Snow Range Yangtze watershed, Rock 8341, 8342.

Sect. 29. **Sieboldianae** Seemen, Salic. Jap. 21 (1903). — Schneider in Sargent, Pl. Wilson. III (1916) 161.

Shrubs or small trees; leaves ovate, obovate-oblong or elliptic, entire or crenuate, glaucous beneath or sericeous although during maturity; catkins flowering almost at the same time, usually having 2—4 normal leaves at the base, sessile or short pedunculate, densely flowered, cylindrical; ventral gland ovate-elongated; stamens 2 or 1, filaments adnate togather or sometimes partly free; ovary pedicelled o. sessile sericeous; style short with short oblong stigma.

140. **Salix hupehensis** Hao n. sp.

Erect shrub with blackish-brown glabrous branches; branches villous; leaves ovate-lanceolate, those leaves terminal at branchlets linear-lanceolate, 3—5 cm long, 10—14 mm broad, dark green glabrous or along the middle nerve sparingly pilose above, silky tomentose beneath, attenuate or broad cuneate at base, acuminate or acute at apex, margin entire; petioles 3—5 mm long, pilose; pistillate catkins terminal at short branches, with 2—3 normal leaves at the peduncle, including peduncle about 4 cm long, 4 mm thick, ventral gland orbicular; bracts elliptic-oblong about as long as the style, densely pubescent without, nearly glabrous within; ovary sessile pilose ovate-elliptic about 1,5 mm long, style short with 2 slender bilobed stigma. — Pl. XL. fig. 80 Wilson no. 685 (type).

Hupeh: Chang yang, Wilson 685 (type ♀ in Herb. Berlin).

141. **Salix dibapha** Schneider in Bot. Gaz. LXIV (1917) 146, fig. I, 1—6. — Handel-Mazzetti Symb. Sinic. VII (1929) 66.

Erect shrub to 4 m tall; branches densely villous when young becoming glabrous; buds yellowish purple; leaves papyraceous, elliptic or elliptic-oblong, acute or short acuminate at apex, cuneat at base, upper surface glabrous except the middle nerve which is pilose, lower side glaucous pruinose or glabrous, with elevated veins, 4—6 cm long, 14—20 mm broad; petioles 4—7 mm long, villous; stipules small semicordate-lanceolate, villous about 3 mm long; pistillate catkins elongated, in fruits to 8 cm long, 9 mm thick, rachis villous, with 1—2 small normal leaves at base which may be about 10 mm long, ovary sessile densely villous, style short divided into two bifid oblong stigma, ventral gland oblong; bracts ½ as long as ovary, elliptic-oblong, obtuse, glabrous within, pilose without, ciliate along the margin;

capsule sessile, ovate-oblong, attenuate at apex, about 4 mm long. — Pl. XLI, fig. 81. Schneider 1646 (type).

Yunnan: Yung ning, Schneider no. 1646 (type! ♀ in Herb. Berlin, Herb. Arn. Arbor.), June 24, 1914; Forêt, mont de Lao keon chan, 2600 m, E. E. Mairy 515 ♀.

142. **Salix hylonoma** Schneider in Sargent, Pl. Wils. III (1916) 68.

Shrub 3—6 m tall; branches pilose when young becoming glabrous reddish brown; leaves ovate to ovate-lanceolate, rarely subcordate obovate-elliptic, rounded or obtuse at base, acuminate, green sparingly villous above, densely pilose beneath, margin remotely glandular-serrate or subentire, 2,5—5,5 cm long, 1,5—2,3 cm broad; petioles slender 3—6 mm long; catkins flowering at the same time, short pedunculate, rachis villous, with 2—3 small leaves at base; staminate catkins about 3 cm long, 6 mm thick, stamens 2 rarely 1, filament villous at the base, with oval yellow anthers; ventral gland linear-oblong, slightly longer than the obovate both surfaces sericeous bracts; pistillate catkins 5—7 cm long, 7 mm thick, in fruits to 8 cm long, 10 mm thick; ovary sessile, short pubescent, ovate; style 2-lobed, with two oblong bifid stigma, gland and bract like those of male flowers; capsule very short pedicelled, sparingly sericeous about 3 mm long. — Pl. XLI, fig. 82. Wilson no. 2138 (type).

Szechuan: Wa shan, 2300—2600 m, Wilson no. 2138 (type! ♀ ♂ in Herb. Arn. Arbor.), June 1908; the same locality, Wilson no. 2138A (type!); Mupin, Wilson 2144 (type! ♀ in Herb. Arn. Arbor.).

Var. **isochroma** Schneider in Bot. Gaz. LXIV (1917) 147. — *Salix isochroma* Schneider in Sargent, Pl. Wils. III (1916) 122.

Shrub 1,2 m tall; branches glabrous and purplish brown; leaves ovate-oblong to oblanceolate, rounded at base, acuminate at apex, upper side green glabrous, white or yellow hairy along the nerves, sericeous or nearly glabrous beneath, nerves prominently reticulate, margin remotely glandular-serrate or partly entire, 2—4,5 cm long, 1—1,5 cm broad, the larger one to 7 cm long, 2,3 cm broad; petioles 4—6 mm long, slender, more or less pilose; pistillate catkins 4,5—5,5 cm long, 10 mm thick, loosely hairy; ovary short pedicelled ovate-oblong, attenuate toward the apex, sericeous, nearly 3 times as long as bracts; style deeply 2-lobed, with two bifid stigma, gland narrow oblong 2 times as long as the pedicel; bracts broad ovate somewhat pilose; capsule narrow oblong, about 4 mm long, short pedicelled, sericeous.

Szechuan: Wa shan, alt. 3300—3800 m, Wilson 4524 (type! ♀ in Herb. Arn. Arbor.), July 1903.

Sect. 30. **Caesiae** Kerner in Verh. Zool. Bot. Ges. Wien, X. 205 Niederöstr. Weid.) (1860). — Schneider in Sargent, Pl. Wils. III (1916) 173.

Shrubs with stout branches; leaves elliptic ovate to oblanceolate, obtuse or acute at apex, discolored, nerves reticulate; margin entire; catkins flowering at the same time, subsessile, ovate-cylindrical or short cylindrical, densely flowered, 8—10—(20) mm long; male flower having one dorsal oblong gland, filaments wholly or partly connate; ovary

sessile, sericeous; style short with oblong stigma; type of this section is *Salix caesia* Andersson.

143. **Salix pubescens** (Wolf) Hao n. nom. — *Salix minutiflora* var. *pubescens* Wolf in Act. Hort. Petrop. XXI (1903) 143. — syn. also: *Salix sibirica* var. *pubescens* Andersson.

Leaves silky at least so when young, 12—30 mm long, 4—9 mm broad, the nerves on the upper surface elevated, ovate, more or less attenuate toward the apex; stipules concolored with long hairs; ovary ovate more or less attenuate at apex, pedicel shorter than the ventral gland, about 2,5 mm long; capsule about 4 mm long.

Altai: in the Kuraisk Island of the River Tschuja, Bunge (type! ♀ in Herb. Berlin); the same locality, P. Krylov, July 5, 1901.

Distribution: in Rayon Kuldshinsk, Regel (type! ♂ ♀ in Herb. Berlin, Herb. Petrop.).

144. **Salix Kochiana** Trautvetter in Mém. Acad. Sci. St. Pétersbourg par. div. sav. III. 632, t. 1 (Salicet.) (1837). — Ledebour, Fl. Ross. III. pt. 2, 602 (1850). — Turczaninow in Bull. Soc. Nat. Mosc. XXVII (1854) 375. — Turczaninow Fl. Baical.-Dahur. II. fasc. I 102 (1856). — Wolf in Act. Hort. Petrop. XXI (1903) 143. — Schneider in Sargent, Pl. Wils. III (1916) 173. — *Salix pontederana* Trautvetter in Ledebour, Fl. Alt. IV. 263 (1833) non Willdenow. — *Salix loniceraefolia* Turczaninow in Bull. Soc. Nat. Mosc. XXVII. 375 (1850). — *Salix chenostachya* Turczaninow in Herb. Berlin.

Small tree or erect shrub with quite lustrously glabrous branches; buds large to 7 mm long; leaves variable in form, lanceolate, oblong, ovate or spathulate-oblong, green above, glaucous beneath, quite glabrous, margin entire; staminate catkins about 1,5 cm long, with villous rachis; bracts acute at apex pilose without 1/2 as long as the single filament; ventral gland ovate, truncate at apex; pistillate catkins similar to the male one; bracts acute at apex, glabrous except the apex, 1/2 as long as the silky ovary; style short with two bilobed stigma; capsule pilose sessile.

Altai, Saposchnikof (ex Schneider).

Distribution: Siberia.

145. **Salix Limprichtii** Pax et Hoffmann in Fedde, Rep. Beih. XII (1922) 353.

Shrub; branches glabrous blackish in colour rarely pruinose; leaves elliptic to oblong, 10—34 mm long, 10—17 mm broad, margin denticulate or subentire, dark green above, palish or glaucous beneath, nerves reticulate, orbicular or subcordate at base; petioles 2—10 mm long glabrous; staminate catkins 4—6 cm long, 8 mm thick, densely flowered, terminal at branches, rachis bracts and filaments all white villous; bracts oblong, obtuse, brown when dry; stamens 2, filaments partly or wholly connate; ventral gland cylindrical, circa 1/2 mm long; pistillate catkins not known.

Szechuan: Wen chuan hsien, bei Schape, 1500 m, Limpricht 1317 (type! ♂ in Herb. Breslau).

146. **Salix caesia** Villars Pl. Dauph. III. 768 (1789) t. 50, fig. 11. — Reichenbach, Icon. Fl. Germ. XI. t. 565 (1849).

Small prostrate shrub with many glabrous branches; leaves elliptic or ovate-spathulate, green above, glaucous beneath, margin entire; pubescent when young becoming glabrous, 10—15 mm long rarely longer; staminate catkins small about 10 mm long, 6 mm thick, rachis pilose; stamens 2, nearly wholly adnate into one filament, filament pilose at base; bracts elliptic-oblong, both sides pilose espesially without, $^2/_3$ as long as filament, one ventral gland; pistillate catkins also small, about 10 mm long, ovary pubescent or silky sessile; bracts ovate pubescent outside, $^1/_2$ as long as the ovary; ventral gland cylindrical about $^1/_3$ as long as bracts; style short with 2 bilobed stigma; capsule pilose ovate-triangular.

Turkestan, A. Regel, May 21, 1879; Centralasia, collected by Futterer and Holderer.

Distribution: common in Europe.

147. **Salix myricaefolia** Andersson in Svensk. Vetensk. Akad. Hand. 1850, 483 (1851) et Jour. Linn. Soc. IV (1860) 53. — *Salix fruticulosa* Andersson in Jour. Linn. Soc. IV (1860) 53. — *Salix divergens* Andersson in De Candolle, Prodr. XVI. pt. 2, 316 (1868). — Hooker f., Fl. Brit. Ind. V (1888) 637.

Erect dwarf shrub with many branches; leaves usually small, both surfaces pubescent, 7—12 mm long, 4—6 mm broad, without distinct petiole, attenuate at base, acute rarely ovate at apex; staminate catkins small about 10 mm long, with 1—2 small normal leaves at the base, stamens adnate togather into one filament, ventral gland cylindrical about $^1/_4$ as long as the ovate bracts which are pubescent without; pistillate catkins headlike or elliptic about 6 mm long; bracts $^2/_3$ as long as the ovary, densely long hairy without, sparingly pilose within, ovate at apex; ventral gland present, not well developed; ovary pilose, with short style and 2 bilobed stigma.

Tibet: NW-Himalaya, 12—13,000 ft. A. Meebold 4699, July 1905; W-Himalaya, 5—10, August 1856, Schlagintweit no. 5203.

Distribution: Kashmir, Kumaon, S. Tibet.

Sect. 31. **Variegatae** Hao n. sect.

Leaves small sessile obovate to spathulate oblong, 5—20 (rarely 4,5 cm as in *Salix Schneideriana)* long, margin revolute glandular denticulate, glabrous above, glaucous sparingly hairy beneath; staminate catkins elliptic-oblong in outline, densely flowered, sessile or only with 1—2 small leaves at base; only ventral gland present; ovary sessile pilose, style short.

148. **Salix andropogon** Léveillé in Fedde, Rep. III (1906) 21. — Léveillé in Bull. Bot. France LVI (1909) 297. — Schneider in Sargent, Pl. Wils. III (1916) 170.

Branches pubescent, very rugose striated; leaves entire obovate to ovate-oblong, usually small, 5—9 mm long, 3—4 mm broad;

staminate catkins sessile about 10 mm long, 3—4 mm thick, filament and anther adnate each other; stamens 2—3 times as long as bracts; anthers bearing some hairs at end of each connective when young; bracts red, ovate, acute, white villous; pistillate catkins sesssile ovate 20 mm long, 8—10 mm thick, tomentose; style curved with 4 stigma; bracts lanceolate slightly shorter than the ovary; capsule pilose sessile; rachis villous. — Pl. XLII, fig. 83. Esquirol 327 (type).

Kweichow: Lit du fleuve, submergé aux grandes eaux, 15. dec. 1904, J. Esquirol 327 (type! ♂ ♀ in Herb. Edinb.).

149. **Salix Schneideriana** Hao n. sp.

Erect shrub; branches pubescent, becoming glabrous and brown when old; leaves spathulate-oblong, 2,5—4,5 cm long, 4—9 mm broad, lustrously green above, grayish or glaucous glabrous and slightly sparingly hairy beneath, margin revolute remotely glandular serrate, obtuse or acute at both ends, the middle nerve on the lower surface quite broad glabrous and yellow in colour; petioles about 4 mm long more or less pubescent; buds large pubescent with brown scale, slightly longer than the petioles; staminate catkins sessile, 2—3,5 cm long, 6—7 mm thick, densely flowered; filaments 2, adnate or growing togather, quite glabrous, anthers separated each other; bracts elliptic, ovate at apex, white pilose without, scarcely villous within, about 1/3 as long as the stamens; ventral gland cylindrical about 1/2 as long as the bracts. — Pl. XLII, fig. 84. Schneider no. 3273 (type).

Yunnan: ad passas in reg. Tali fu, shrub, 0,6—2 m tall, C. Schneider no. 3273 (type ♂ in Herb. Berlin), alt. 2300 m, Oct. 1914. — Kokonor: Ta ho pa, 4000 m, Hao 1052, August 28, 1930. — Chekiang: Yen tang shan, C. Y. Chiao 14627, August 1, 1927.

150. **Salix variegata** Franchet in Pl. David. II. 120 (1888) — Burkill in Jour. Linn. Soc. XXVI (1899) 534. — Seemen in Bot. Jahrb. XXIX (1900) 278. — Léveillé in Bull. Bot. France LVI (1909) 301. — Schneider in Sargent, Pl. Wils. III (1916) 70. — *Salix densifoliata* Seemen in Bot. Jahrb. XXI. Beibl. LIII. 57 (1896). — Léveillé in Bull. Bot. France LVI (1909) 298. — *Salix Bockii* Seemen in Bot. Jahrb. XXIX. 278, t. 3, fig. G—M (1900). — Pax et Hoffmann in Fedde, Rep. Beih. XII (1922) 353. — Léveillé in Bull. Bot. France LVI (1909) 297. Schneider in Sargent, Pl. Wilson. III (1916). — Handel-Mazzetti Symb. Sinic. VII (1929) 87. — *Salix Duclouxii* Léveillé l. c. 298. — Schneider in Sargent, Pl. Wils. III. (1916) 170. — Handel-Mazzetti Symb. Sinic. VII. (1929) 87. — *Salix Duclouxii* var. *kouytchensis* Léveillé in Bull. Soc. France LVI (1909) 298. — *Salix kouytchensis* Schneider in Sargent, Pl. Wils. III (1916) 171.

Branches quite tomentose, striated; leaves oval-lanceolate to oblong, margin remotely denticulate rarely entire, glabrous or sparingly hairy above, glaucous and with sparingly hairy beneath, attenuate or subrounded at base, acute or ovate at apex, 10—15 mm long, 4—5 mm broad, the leaves on the sterile branches to 20 mm long, petioles short only 1 mm long or wanting; staminate catkins sessile erect oval-

lanceolate, to 14 mm long, 6 mm thick, densely flowered with pilose peduncle; bracts linear-lanceolate, acute at apex, to 2 mm long, ciliate with hairs; stamens 2, growing togather into a filament, 2 times as long as bracts, glabrous; pistillate catkins sessile densely flowered, erect, about 12 mm long, the larger ones in fruits to 4 cm long; bracts lanceolate, acute, both sides more or less villous; gland sometimes lobed at apex; capsule pilose ovate-lanceolate attenuate at apex; style very short with 2 reflexed stigma.

Szechuan: in valle fluminis Yangtze kiang, David (type! in Mus. Paris), Delavay no. 4539; Nanchuan, Rosthorn no. 1509 (type! of *Salix Bockii* Seemen); Wenchuan hsien, zwischen Felsblöcken am Yangtze, Limpricht 1174; Omei hsien, 1500—2000 ft. W. P. Fang 3377, August 27, 1928; Tien chuan hsien, on rock, alt. 2500—3000 ft. Fang 3482, Sept. 9, 1928; Mow chow, Fang 5542, Sept. 27, 1928. — Yunnan: Plain of Tali, Delavay no. 4549, December 7, 1889; the same locality, A. Henry nos. 957, 2271; Yunnan fu, C. Schneider no. 198; Tong tchouan, 2700—2800 m, Maire no. 3255; am Bache bei Schi lung pa, bis 60 cm hoch, Schneider 198, February 20, 1914; without precise lovality, Forrest 6438; ad vias et passas inter campos prope Tali, Schneider 2765, Oct. 14, 1914; Yunnan fu, Scharly no. 36, Oct. 5, 1916; Tsang schan, 2000—2500 m, Limpricht 1022 and 1103; Yunnan fu, valleys, F. Ducloux no. 670 (type! ♂ ♀ of *Salix Duclouxii* Léveillé); Likiang, J. F. Rock 3180, 6368, 6380, 6568, 6568A. — Kweichow: borde de la rivière de Quen-tsen-kiao (Kouy-tin), Cavalerie no. 728 (type! ♀ of *S. kouytchensis* Schneider and also of *S. Duclouxii* var. *kouytchensis* Léveillé). — Hupeh: Entrance of the Mitan Gorge, G. Niederlein 98, Oct. 19, 1899; between Ichang and the end of the Gorge, David (type!), Dec. 1868; Ichang, alt. 30—300 m, Wilson 2120; the same locality, A. Henry 7175 (type! ♀ of *Salix densifoliata* Seemen).

Sect. 32. **Helix** Dumortier in Bijdr. Naturk. Wetensch. 1825 (Verh. Ges. Wilgen, 15).

Trees or shrubs, with elongated flexible branches; leaves broad or linear-lanceolate, rarely elliptic or oblanceolate, margin entire or serrate-denticulate; catkins flowering almost at the same time, sessile or nearly so, narrow cylindrical and densely flowered; male flowers bearing one gland, stamens 2, filaments wholly or partly connate, sometimes the anthers also connate each other; female flowers, ovary sericeous or glabrous sessile or nearly so, style short or wanting or elongated, with short stigma.

151. **Salix lepidostachys** Seemen in Bot. Jahrb. XXI. Beibl. LIII. 51 (1896) et Salic. Jap. 58 (1903) Pl. XII. fig. F—K. — Schneider in Sargent, Pl. Wils. III (1916).

Branches brown glabrous lustrous; leaves long lanceolate, narrowed into the petiole, long acuminate, to 11 cm long, 25 mm broad, serrate except tho lower part where near the base is quite entire, glabrous and lustrous above, glaucous glabrous beneath, nerves elevated; petioles to 1,5 cm long; those young leaves at catkin-base and on the

young branches more or less pilose, nearly entire; staminate catkins sessile, 3—4 cm long, 6 mm thick; stamens connate togather, filament glabrous slightly pilose at base; bracts ovate 1/2 as long as filament, gland 1/3 as long as bracts; pistillate catkins 4,5 cm long, 9 mm thick, bracts oval as long as the ovary; ovary long pedicelled ovate elliptic pubescent; style aud the 4 stigma about equal in lenght; gland small, as long as the pedicel; capsule pilose about 3,5 mm long. — Pl. XLIII. fig. 85. Tokubuchi (type).

Manchuria: Ussuri, Siuzev no. 20, April 22, 1905; the same locality, Siuzev no. 23, April 30, 1905.

Distribution: Japan, Tokubuchi (type! ♂ ♀ in Herb. Berlin, Herb. Sappora Agric. Colege).

152. **Salix oxycarpa** Andersson in Jour. Linn. Soc. IV. (1860) 45. — Brandis, Forest Fl. Brit. Ind. 471 (1874). — Hooker f., Fl. Brit. Ind. 636 (1888). — Schneider in Sargent, Pl. Wils. III (1916) 172. — *Salix pycnostachya* var. *alpina* Hooker f., apud Andersson in De Candolle, Prodr. XVI. pt. 2, 309 (1868).

This species is quite similar to *Salix pycnostachya* Andersson but differs in the following characters: leaves both surfaces sparingly pilose; petioles rather longer; stipules linear and serrate if present; female plant usually having the entire leaves; glabrous filaments united for half of their lenght; branches more or less pubescent at least so when young.

Tibet: Tsauskar, Schlagintweit no. 6714, 7175; the same locality, Thomson (type! of var. *alpina*); Ladak, Schlagintweit no. 6531; NW-Himalaya, 11500—13,000 ft. A. Meebold no. 4700, June 1905.

Distribution: Pamir.

I agree well with Schneider that this species seems to be a very ancertain species. All other varieteies pointed out by Andersson under his species as *latifolia*, *angustifolia*, *breviuscula* and *serratifolia* may be condsidered variable forms of the same plant.

153. **Salix Baileyi** Schneider in Bailey, Gent. Herb. I. 16 (1920) fig. 3a, b. — Rehder in Jour. Arn. Arbor. IV. (1923) 142. — Chung, Catal. Trees end Shrubs of China 16 (1924).

Shrub with erect glabrous brownish branches; buds pilose when young, to 14 mm long, olive-brown, narrow elliptic becoming glabrous; leaves thick papyraceous, lanceolate or elliptic-lanceolate, both ends subobtuse or acute at apex, 2,5—6 cm long, 8—18 mm broad, the upper ones lanceolate to 11,5 cm long, 2,5 cm broad, dark green glabrous obove (along the nerves toward the base sparingly pilose), glauscent or pruinose beneath, margin distinctly and remotely glandular-serrate-dentate, with 3—4 teeth in pro 1 cm; petioles short about 6 mm long, broad sulcate above; catkins sessile cylindrical to 3,5 cm long, 7 mm thick, rachis villous; ovary ovate-elliptic, about 2 mm long, glabrous, style divided into 2 bilobed stigma; ventral gland small, 1/3 as long as the pedicel, ovate rectangular, obtuse; bracts obovate, rounded at apex, bicolored, sericeous at apex, slightly longer than the pedicel; capsule ovate-elliptic, glabrous, excluding pedicel about to 4 mm long.

Honan: Chi kung shan, alt. 500—800 m, L. H. Bailey (type! ♀ in Herb. Arn. Arbor.), June 16, 1917.

154. **Salix Miyabeana** Seemen in Bot. Jahrb. XXI. Beibl. LIII. 50 (1896) et Salic. Jap. 57, t. XII, fig. A—E (1903). — Schneider in Sargent, Pl. Wils. III (1916) 166.

Leaves long lanceolate, to 16 cm long, 27 mm broad, crenuately serrate along the margin, acuminate at apex, attenuate at base, both sides rather glabrous or glaucous beneath; petioles glabrous to 11 mm long, rather stout; stipule well developed, linear lanceolate, to 22 mm long, finely serrate; catkins producing before the leaves; staminate catkins sessile cylindrical narrowed at apex, to 4 cm long, 10 mm thick, erect, rachis pilose; bracts oval; stamens 2, growing togather into a filament, only to 3 mm long, with orbicular anthers; ventral gland ovate, 1/4 as long as the bract; pistillate catkins sessile slender, to 8 cm long, 6 mm thick, erect, more or less curved, densely flowered, rachis hairy; bracts oval as long as ovary, both sides pilose, style wanting, with two thick stigma; ventral gland oval; capsule pilose sessile. — Pl. XLIII. fig. 86. Tokubuchi (type).

Hopeh: near Tientsin, Wilson (ex Schneider). — cult. in Arn. Arbor.

Distribution: Japan, Tokubuchi (type! ♂ ♀ in Herb. Berlin).

155. **Salix Pierotii** Miquel in Ann. Mus. Lugd.-Bat. III. 27 (1867). Seemen Salic. Jap. 60, t. 13, fig. E—I (1903). — syn. *Salix japonica* Dippel, non Thunberg.

Branches brown; leaves to 12—15 cm long, 2—2,4 cm broad, broad lanceolate, margin densely and finely serrate, teeth acuminate, dark green and slightly lustrous above, grayish or glaucous below, veins elevated espesially on the lower side; stipule ovate to lanceolate, finely serrate; staminate catkins sessile, producing at the same time with leaves, 2,5 cm long, 5 mm thick, peduncle grayish pilose, with 2—3 small leaves at base; bracts oblong, 1/2 as long as filament; stamens 2, growing togather, pilose near the base, anthers dark brown; ventral gland elliptic 1/2 as long as bract; pistillate catkins sessile 1,5 cm long, 5 mm thick, peduncle gray pilose; bracts ovate as long as the ovary; ventral gland about 1/3 as long as bract; ovary sessile long hairy; style and ovary about equal in length; stigma 2, bifid, 1/2 as long as style.

Manchuria: Amur, Siuzev; Ussuri, Siuzev. — cult. in Berlin Botanical Garden and München Botanical Garden.

Distribution: Japan, Pierot (type! in Herb. Lugd.-Bat.; cotype in Herb. Berlin).

156. **Salix pycnostachya** Andersson in Jour. Linn. Soc. IV (1860) 44. — Hooker f., Fl. Brit. Ind. V (1888) 636. — Schneider in Sargent, Pl. Wils. III (1916) 171.

Leaves linear-lanceolate about 3,5 cm long, 8 mm broad, both ends acuminate, subsessile, margin slightly serrate, light green beneath; staminate catkins about 3 cm long, 7 mm thick, cylindrical, with hirsute rachis; bracts spathulate-obovate, 1/2 as long as filament, pilose on both

sides; stamens 2, connate into one filament, anthers distinctly separated, filament glabrous but villous at base; pistillate catkins about 3,5 cm long, 8 mm thick; bracts ovate glabrous without long hairs within, rachis pilose, ½ as long as the ovary; capsule glabrous sessile, 5 mm long, ovate-oblong, gibbous at base, acute at apex, style short with two biparted stigma.

Centralasia in Turkestan, Ove Paulsen no. 735.

Distribution: India orientalis, Thomson (type! ♂ ♀ in Herb. Kew, Herb. Berlin).

157. **Salix multinervis** Franchet et Savatier, Enum. Pl. II. 504 (1879). — *Salix amplexicaulis* Chaubard in Bory, Exp. Sci. Morée, III. 2, Bot. 277. — *Salix purpurea* var. *multinervis* Matsumura ex Seemen Salic. Jap. 56, t. 11, fig. F—K (1903). — *Salix purpurea* subspecies *amplexicaulis* var. *petiolata* subvar. *angustifolia* Koidzumi in Tokyo Bot. Mag. XXVII. 92 (1913). — *Salix purpurea* subsp. *amplexicaulis* var. *multinervis* Schneider in Sargent, Pl. Wils. III (1916) 168.

Shrub with slender glabrous branches; leaves sessile, elliptic-oblong, cordate at base, margin serrate or crenuate, obtuse at apex, during flowering time 1—1,5 cm long, those leaves on the mature branches elongated to 6 cm long 18 mm broad, dark green above, glaucous beneath; staminate catkins sessile 15—20 mm long, 4 mm thick, one ventral gland, filament pilose at base; bracts orbicular, both sides long hairy; pistillate catkins sessile about 1,5 cm long, densely flowered; bracts orbicular slightly hairy, ⅔ as long as the ovary; ovary sessile elliptic-ovate, pilose, style short or wanting with indistinct stigma.

Manchuria: Ussuri, Siuzev 55, August 29, 1905.

Distribution: Korea and Japan (Tanaka, type ex Franchet).

158. **Salix purpurea** Linnaeus Sp. 1017 (1753). — Turczaninow Fl. Baical.-Dahur. III. fasc. I, 102 (1856). — Burkill in Jour. Linn. Soc. XXVI (1899) 532. — Seemen Salic. Jap. 54, t. 11, fig. A—E (1903). — Komarov in Act. Hort. Petrop. XXII (1904) 27. — Shirasawa, Icon. Ess. For. Jap. II. t. 7, fig. 10—18 (1908). — Schneider in Sargent, Pl. Wils. III (1916) 167. — Rehder in Jour. Arn. Arbor. IV (1923) 144. — *Salix purpurea* var. *typica* Beck, Fl. Nied.-Oestr. 288 (1890). — *Salix purpurea* subsp. *eupurpurea* var. *typica* Schneider, Ill. Handb. Laubh. I. 68 (1904).

Branches glabrous; leaves linear spathulate, 3—5—10 cm long, 9—12 mm broad, both sides glabrous, glaucous beneath; petioles very short or nearly wanting, male plant-leaves entire, female plant-leaves remotely slightly serrate; staminate catkins sessile about 2,5 cm long, densely flowered, bracts orbicular blackish, filaments short; pistillate catkins 1,5—2 cm long, densely flowered, 4 mm thick, with 2 small lanceolate leaves, these leaflets usually silky on the lower side; bracts like those of male flowers; ovary pilose with capitate style; capsule pilose sessile.

Manchuria: Mukden, Siuzev nos. 54, 117, 118; the same locality, Bohnhof; Ussuri, Siuzev no. 33, April 29, 1905; Amur,

Siuzev no. 113, June 15, 1905; the same locality, S. Korshinski, May 28, 1891. — cult. in Prince Park Peiping.

56a. **Salix Chienii** Cheng in Contr. Biol. Lab. Sci. Soc. China IX. Bot. ser. 59 fig. 4 (1933) et IX. Bot. ser. 189 (1934).

Shrub or small tree up to 8 m tall; branches erect greenish and puberulous when young becoming purplish and glabrous; buds puberulous obtuse at apex; leaves elliptic or elliptic-oblong rarely obovate or oblanceolate, acute obtuse or sometimes rounded at apex, rounded or broad cuneate at base, margin glandular-serrate, 20—34 mm long, 6—11 mm broad, dark green glabrous above, glaucous beneath (young leaves both sides pubescent), short petiolate; staminate catkins cylindrical 15—20 mm long, with 3—7 obovate about 6 mm long leaflets at the base; stamens 2, filaments villous at base, about 3 mm long, with subglobose and yellow anthers; glands 2, separated, the ventral one ovate, 1/5 as long as the bract, the dorsal linear truncate at apex; bracts obovate rounded or subacute at apex, both sides pilose; pistillate catkins 12—15 mm long, in fruits to 2—4 cm long, short pedunculate with 3—5 obovate to oblanceolate 8—16 mm long leaflets at the base; ovary sessile ovate glabrous, style short as long as the 2-lobed stigma; only ventral gland present, ovate, 1/3—1/4 as long as the bracts; bracts ovate to oblong, obtuse, both sides glabrous; capsule ovate-oblong about 3 mm long.

Chekiang: Chin hua, S. Chen 2722, April 1934; West-Tienmushan, S. Chen 2675 (det. by W. C. Cheng as topo-type of *Salix Chienii* Cheng), March 31, 1934; the same locality, S. Cheng 2674, March 31, 1934; East-Tienmushan, K. K. Tsoong 63 and W. C. Cheng 2255 (type ex Cheng).

This species in much related to *S. babylonica* Linnaeus from which but it differs chiefly in the upright branching and usually shrubby habit, in the smaller elliptic leaves and in the at apex rounded bracts.

Species, variety and hybrid doubtful or not seen.

159. *Salix inamoena* × *tetradenia* Handel-Mazzetti Symb. Sinic. VII (1929) 71.

160. *Salix Mesnyi* Hance in Jour. Linn. Soc. XX (1882) 38.

161. *Salix salwinensis* × *radinostachya* Handel-Mazzetti Symb. Sinic. VI (1929) 76.

162. *Salix tenella* var. *trichadenia* Handel-Mazzetti Symb. Sinic. VII (1929) 68.

163. *Salix Alfredi* Görz in J. Arn. Arb. XIII (1932) 403.

164. *Salix babylonica* var. *szechuanica* Görz in Bull. Fan. Mem. Inst. Biol. VI (1935) 2.

165. *Salix Balansaei* Seemen var. *szechuanica* Görz l. c. 2.

166. *Salix cereifolia* Görz in J. Arn. Arb. XIII (1932) 393.

167. *Salix Delavayana* × *myrtillacea* Görz l. c. 403.

168. *Salix Ernesti* × *obsimantha* Görz l. c. 395.

169. *Salix Huiana* Görz in Bull. Fan. Mem. Inst. Biol. VI (1935) 13.

170. *Salix Huiana* var. *tricholepis* Görz l. c. 14.

171. *Salix hypoleuca* var. *kansuensis* Görz in J. Arn. Arb. XIII (1932) 392.
172. *Salix juparica* Görz l. c. 391.
173. *Salix juparica* × *sibirica* Görz l. c. 398.
174. *Salix luctuosa* × *tenella* Görz l. c. 389.
175. *Salix muliensis* Görz l. c. 389.
176. *Salix myrtillacea* × *Rockii* Görz l. c. 402.
177. *Salix myrtillacea* × *Wilhelmsiana* l. c. 401.
178. *Salix ochetophylla* Görz in Bull. Fan. Mem. Inst. Biol. VI (1935) 7.
179. *Salix oritrepha* var. *tibetica* Görz in J. Arn. Arb. XIII (1932) 388.
180. *Salix phaneroides* Görz in Bull. Fan. Mem. Inst. Biol. VI (1935) 9.
181. *Salix pseudo-Ernesti* Görz l. c. 5.
182. *Salix pseudospissa* Görz in J. Arn. Arb. XIII (1932) 395.
183. *Salix pseudo-Wallichiana* Görz l. c. 397.
184. *Salix Rockii* Görz l. c. 393.
185. *Salix sphaeronymphe* Görz in Bull. Fan Mem. Inst. Biol. VI (1935) 4.
186. *Salix tibetica* Görz in J. Arn. Arb. XIII (1932) 391.
187. *Salix wenchuanica* Görz in Bull. Fan. Mem. Inst. Biol. VI (1935) 19.

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(* indicated synonym).

*S. *acuminata* Hao. no. 30.
S. *acuminatomicrophylla* Hao no. 30.
*S. *acutifolia* Ledebour no. 128.
*S. *alba* Burkill no. 56.
*S. *alba* var. *eriocarpa* Hooker f. no. 68.
S. *Alfredi* Görz no. 163.
S. *allochroa* Schneider no. 51.
S. *amnematchinensis* Hao no. 73.
*S. *amplexicaulis* Chaubard no. 157.
S. *amphibola* Schneider no. 48.
*S. *amygdalina* Linnaeus no. 2.
*S. *amygdalina* Koidzumi no. 1.
*S. *amygdalina* var. *nipponica* Schneider no. 1.
S. *andropogon* Léveillé no. 148.
S. *angiolepis* Léveillé no. 3.
S. *angustifolia* Willdenow no. 136
*S. *anisandra* Léveillé no. 12.
S. *annulifera* Marquand no. 36.
*S. *apatela* Schneider no. 42.
S. *araeostachya* Schneider no. 10.
*S. *Argyi* Léveillé no. 4.
S. *argyrophegga* Schneider no. 49.
S. *atopantha* Schneider no. 65.
S. *atopantha* var. *glabra* Hao no. 65.
S. *babylonica* Linnaeus no. 56.
S. *babylonica* var. *szechuanica* Görz no. 164.
S. *Baileyi* Schneider no. 153.
S. *Balasaei Seemen* var. *szechuanica* Görz no. 165.
S. *Balfouriana* Schneider no. 118
S. *berberifolia* Pallas no. 40.
*S. *berberifolia* var. *Brayi* Trautvetter no. 41.
S. *Biondiana* Seemen no. 74.
S. *bistyla* Handel-Mazzetti no. 59.
*S. *Bockii* Seemen no. 150.
S. *brachista* Schneider no. 26.

*S. *brachista* Handel-Mazzetti no. 29.
*S. *brachystachys* Franchet no. 109.
*S. *bracteosa* Turczaninow no. 11
S. *Brayi* Ledebour no. 41.
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*S. *Camusii* Léveillé ♀ no. 53.
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*S. *chamaehybrida* Görz no. 71.
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S. *cheilophila* Schneider no. 137.
*S. *chenostachya* Turczaninow no. 144.
*S. *chekiangensis* Cheng no. 7.
S. *Chienii* Cheng no. 56a, p. 115.
S. *chikungensis* Schneider no. 101
S. *Chingiana* Hao no. 99.
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S. *cinerea* Linnaeus no. 108.
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S. *Daltoniana* Andersson no. 111.
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*S. *daphnoides* Brandis no. 96.
*S. *daphnoides* Ledeb. no. 128.
*S. *daphnoides* var. *indica* Andersson no. 96.
*S. *dasyclados* Seemen no. 123.
*S. *dasyclados* subsp. *stipularis* Seemen no. 123.
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S. *Delavayana* × *myrtillacea* Görz no. 167.
*S. *Delavayana Wallichiana* Görz no. 66.
*S. *densifoliata* Seemen no. 150
S. *denticulata* Andersson no. 89.
*S. *depressa* Fries no. 127.
S. *dibapha* Schneider no. 141.
S. *dictyoneura* Seemen no. 5.
*S. *disperma* Don no. 9.
S. *dissa* Schneider no. 77.
*S. *divergens* Anders. no. 147.
S. *dodecandra* Léveillé no. 12.
S. *dolia* Schneider no. 120.
S. *dolichostyla* Seemen no. 55.
S. *driophila* Schneider no. 114.
*S. *Duclouxii* Léveillé no. 150.
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S. *Dunnii* Schneider no. 7.
*S. *dyscrita* Schneider no. 84.
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*S. *elegans* Wallich no. 89.
*S. *eriocarpa* Franchet no. 55.
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*S. *eriophylla* Anderss. no. 67.
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*S. *etosia* Schneider no. 53.
S. *eucalyptoides* Meyer no. 14.
S. *Fargesii* Burkill no. 45.
S. *Faxoniana* Schneider no. 37.
S. *flabellaris* Andersson no. 33.
S. *flavicans* Hao no. 121.
S. *floccosa* Burkill no. 39.
*S. *floccosa* Diels no. 103.

S. Forrestii Hao no. 63.
**S. Franchetiana* Hdl.-Mazz. no. 111.
**S. fruticulosa* Anderss. no. 147.
**S. funebris* Léveillé no. 110.
**S. furcata* Andersson no. 25.
S. glandulosa Seemen no. 16.
S. Guebrianthiana Schneider no. 54.
S. gracilistyla Miquel no. 138.
**S. grisea* Wallich no. 110.
S. hastata Linnaeus no. 94.
— var. *himalayensis* Andersson no. 94.
**S. Henryi* Seemen no. 45.
**S. Henryi* Burkill no. 98.
S. heterochroma Seemen no. 98.
**S. heteromera* Hdl.-Mazz. no. 56
**S. heteromera* var. *villosior* Hdl.-Mazz. no. 56.
S. hirticaulis Hdl.-Mazz. no. 23.
S. Huiana Görz no. 169.
— var. *tricholepis* Görz no. 170.
S. hupehensis Hao no. 140.
S. hylonoma Schneider no. 142.
— var. *isochroma* Schneider no. 142.
S. hypoleuca Seemen no. 81.
S. hypoleuca var. *kansuensis* Görz no. 171.
— var. *platyphylla* Schneider no 81.
**S. ichnostachya* Lindley no. 10.
S. inamoena Hdl.-Mazz. no. 119.
S. inamoena × *tetradenia* Hdl.-Mazz. no. 159.
S. insignis Andersson no. 106.
**S. isochroma* Schneider no. 142.
**S. japonica* Dippel no. 155.
S. jessoensis Seemen no. 69.
S. juparica Görz no. 172.
S. juparica × *sibirica* Görz no 173.
**S. kamaunensis* Lindley no. 89.
S. kansuensis Hao no. 47.
**S. Kinashii* Léveillé no. 1.
S. Kochiana Trautvetter no. 144.
**S. kouytchensis* Schneider no. 150.
S. lamashanensis Hao no. 124.
S. lepidostachys Seemen no. 151.
S. Léveilléana Schneider no. 95.
S. Lindleyana Wallich no. 25.
**S. Lindleyana* Diels no. 26.
**S. Lindleyana* var. *Souliei* Görz no. 25.
**S. Lindleyana* var. *Souliei* × *oritrepha* Görz no. 71.
S. linearistipularis Hao no. 133.
S. Limprichtii Pax et Hoffmann no. 145.
**S. livida* Wahlenberg no. 127.
* — var. *cinerascens* Wahlenburg no. 127.
* — var. *Starkeana* Toepffer no. 127.
S. longiflora Andersson no. 86.
**S. longiflora* Burkill no. 92.
— var. *albescens* Burkill no. 86.
* — var. *psilolepis* Hdl.-Mazz. no. 52.
**S. loniceraefolia* Turcz. no. 144.
S. luctuosa Léveillé no. 84.
S. luctuosa × *tenella* Görz no. 174.
**S. lucida* no. 33.
S. macroblasta Schneider no. 78.
**S. macrolepis* Turczaninow no. 11.
S. magnifica Hemsley no. 42.
— var. *apetala* Hao no. 42.
**S. Mairei* Léveillé no. 110.
S. Matsudana Koidzumi no. 57.
— f. *pendula* Schneider no. 57.
— f. *tortuosa* Vilm no. 57.
S. Maximowiczii Komarov no. 17.
S. melea Schneider no. 76.
S. Mesnyi Hance no 160.
**S. Mesnyi* Burkill no. 4.
**S. microphylla* 29.
S. microphyta Franchet no. 35.
S. microstachya Turcz. no. 134.
S. mictotricha Schneider no. 80.
**S. minutiflora* var. *pubescens* Wolf no. 143.
**S. mixta* Korsh. no. 55.
S. Miyabeana Seemen no. 154.
**S. mongolica* Franchet no. 136.
**S. mongolica* Siuzev no. 136.

S. moupinensis Franchet no. 43.
S. muliensis Görz no. 175.
S. multinervis Franchet no. 157
S. myricaefolia Andersson no. 147.
S. myrtillacea Andersson no. 139.
S. myrtillacea × *Rockii* Görz no. 176.
S. myrtillacea × *Wilhelmsiana* Görz no. 177.
S. myrtilloides Linnaeus no. 102.
S. nigrocosticata Pax et Hoffmann no. 97.
S. nipponica Franchet no. 1.
S. obovata Wallich no. 33.
S. obscura Andersson no. 105.
S. ochetophylla Görz no. 178.
S. omeiensis Schneider no. 46.
S. opaca Andersson no. 129.
S. opsimantha Schneider no. 37.
S. oreinoma Schneider no. 32.
S. oreophila Hooker f. no. 21.
— var. *secta* Andersson no. 20.
S. oritrepha Schneider no. 71.
— var. *tibetica* f. *uniglandulosa* Görz no. 71.
S. oritrepha var. *tibetica* Görz no. 179.
S. ovatomicrophylla Hao no. 29.
S. oxycarpa Andersson no. 152.
S. oxycarpa var. *serratifolia* Andersson no. 96.
S. pachyclada Léveillé no. 110.
S. paraplesia Schneider no. 19.
S. pella Schneider no. 44.
S. pentandra Linnaeus no. 18.
S. phaidima Schneider no. 61.
S. phanera Schneider no. 58.
S. phaneroides Görz no. 180.
S. phylicifolia Linnaeus no. 72.
S. phylicifolia Rehder no. 109.
S. phylicoides Andersson no. 130.
— var. *attenuata* no. 130.
S. Pierotii Miquel no. 155.
S. piptotricha Hand.-Mazz. no 24.
S. pirolaefolia Ledebour no. 93.
S. pirolifolia var. *cordata* Ledebour no. 93.
S. polia Schneider no. 104.
S. polyandra Léveillé no. 15.
S. polyclona Schneider no. 83.
S. plocotricha Schneider no. 62.
S. pontederana Trautv. no. 144.
S. praecox Trautvetter et Meyer no. 128.
S. praticola Hand.-Mazz. no. 113.
S. pseudo-Ernetii Görz no. 181.
S. pseudospissa Görz no. 182.
S. pseudowolohoensis Hao no. 87.
S. pseudo-Wallichiana Görz no. 183.
S. psilostigma Andersson no. 67.
S. pubescens Hao no. 143.
S. purpurea Linnaeus no. 158.
S. purp. subsp. amplexicaulis var. *multinervis* Schneider no. 157.
S. purp. subsp. amplexic. var. *petiolata* subvar. *angustifolia* Koidz. no. 157.
S. purp. subsp. eupurpurea var. *typica* Schneider no. 158.
S. purp. var. *multinervis* Matsumura no. 157.
S. purpurea var. *stipularis* Franchet no. 133.
S. purp. var. *typica* Beck no 158.
S. pycnostachya Andersson no. 156.
— var. *alpina* Hooker f. no. 152.
S. Pyi Léveillé no. 15.
S. pyrina Wallich no. 9.
S. radinostachya Schneider no. 54.
S. Rehderiana Schneider no. 97.
— var. *brevisericea* Schneider no. 97.
S. repens Linnaeus no. 126.
— var. *brachypoda* Trautvetter no. 121.
repens var. *flavicans* Andersson no. 121.
repens var. *fusca* Trautvetter no. 121.
repens var. *subopposita* Seemen no. 125.
S. resecta Diels no. 115.
S. resectoides Hand.-Mazz. no. 34.
S. rhoophila Schneider no. 85.
S. Rockii Görz no. 184.

S. rorida Lackschewitz no. 128.
S. Rosthornii Seemen no 6.
**S. rotundifolia* no. 33.
**S. sabulosa* Turczaninow no. 93.
S. salwinensis Handel-Mazzetti no. 112.
S. salvinensis × *radinostachya* Handel-Mazetti no. 162.
S. Schneideriana Hao no. 149.
S. Schwerinii Wolf no. 122.
S. sclerophylla Andersson no. 64.
S. shansiensis Hao no. 132.
S. secta Hooker f. no. 20.
S. sericocarpa Andersson no. 68.
S. sibirica Pallas no. 131.
**S. sibirica* var. *pubescens* Andersson no. 143.
**S. sibirica* var. *subopposita* Schneider no. 125.
S. sikkimensis Andersson no. 107.
**S. sikkimensis* Burkill no. 91.
S. Siuzevi Seemen no. 130.
S. Souliei Seemen no. 28.
S. spathulifolia Seemen no. 100.
S. spadiophylla Handel-Mazzetti no. 103.
S. spadiophylla var. *liocarpa* Hao no. 103.
S. sphaeronymphe Görz no. 185.
**S. squarrosa* Schneider no. 139.
S. Starkeana Willdenow no. 127.
— var. *cinerascens* Schneider no. 127.
**S. stipularis* Trautvetter no. 129.
**S. stipularis* Smith no. 123.
S. subopposita Miquel no. 125.
**S. subpycnostachya* Burkill no. 139.
S. Tangii Hao no. 82.
S. tenella Schneider no. 52.
— var. *trichadenia* Handel-Mazzetti no. 163.
S. tetradenia Hand.-Mazz. no. 53.
S. tetrasperma Roxburg no. 8.
**S. tetrasperma* Diels no. 15.
**S. tetrasperma* var. *ichnostachya* Andersson no. 10.
**S. tetrasperma* var. *pyrina* Andersson no. 9.
**S. Thunbergiana* Blume no. 138.
S. tibetica Görz no. 186.
S. triandra Linnaeus no. 2.
* — var. *nipponica* Seemen no. 1.
* *triandra* var. *vulgaris* Seemen no. 16.
**S. Tsoongii* Cheng no. 4.
**S. ulotricha* Schneider no. 50.
**S. vaccinioides* Hand.-Mazz. no. 79.
**S. vagans* Andersson no. 127.
S. variegata Franchet no. 150.
S. viminalis Linnaeus no. 123.
**S. viminalis* Komarov no. 129.
S. Wallichiana Anderss. no. 110.
* — Rehder no. 109.
S. Wangiana Hao no. 90.
**S. Wangii* Görz no. 103.
**S. Wangii* f. *liocarpa* Görz no. 103.
**S. Weigeliana* Turczanow no. 144.
S. wenchuanica Görz no. 187.
S. Wilhelmsiana no. 135.
S. Wilsoni Seemen no. 4.
S. wolohoensis Schneider no. 117.
S. Wuiana Hao no. 116.
**S. yunnanensis* Léveillé no. 15.

Errata.

p.	row	for	read
1	16	unequal	unequal
1	21	thd	the
2	29	withe	white
3	2	beneat	beneath
3	41	distingt	distinct
3	43	theet	sheet
4	9	nervet	nerves
4	25	wich	which
5	31	obout	about
6	12	*Cansuensis*	*kansuensis*
7	46		cut out
7	50	thik	thick
8	2	*clerophylla*	*sclerophylla*
8	26	thik	thick
8	29	parded	parted
22	11	Schneider	Schneider
28	5	linght	light
30	6	obout	abouth
34	5	*sericarpa*	*sericocarpa*
43	7	Pl. II	Pl. III
44	42	after pilose	add. Pl. III. fig.6. Henry 9338(type).
51	26	petiolos	petioles
59	30	n. nom.	n. comb.
85	23	after ovary	add. Pl.XXIX. fig. 58. Wilson 1403 (type).
86	27	lolo	10.
91	17	*dentate*	*dentata*
93	41	orbibular	orbicular
97	42	n nom.	n. comb.
108	3	n. nom.	n. comb.
112	22	lenght	length

Explanations of plates.

Pl. I.	fig. 1.	*Salix angiolepis* Léveillé (type).
	fig. 2.	*S. Wilsoni* Seemen (type).
Pl. II.	fig. 3.	*S. dictyoneura* Seemen (type).
	fig. 4.	*S. Rosthornii* Seemen (type).
Pl. III.	fig. 5.	*S. Dunnii* Schneider (type).
	fig. 6.	*S. araeostachya* Schneider (type).
Pl. IV.	fig. 7.	*S. dodecandra* Léveillé (type).
	fig. 8.	*S. eucalyptoides* Meyer (type).
Pl. V.	fig. 9.	*S. glandulosa* Seemen (type).
	fig. 10.	*S. paraplesia* Schneider (type).
Pl. VI.	fig. 11.	*S. crenata* Hao (type).
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Pl. VII.	fig. 13.	*S. piptotricha* Handel-Mazzetti (type).
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Pl. VIII.	fig. 15.	*S. ovatomicrophylla* Hao (type).
	fig. 16.	*S. acuminatomicrophylla* Hao (type).
Pl. IX.	fig. 17.	*S. oreinoma* Schneider (type).
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Pl. X.	fig. 19.	*S. annulifera* Marquand (type).
	fig. 20.	*S. Faxoniana* Schneider (type).
Pl. XI.	fig. 21.	*S. coggygria* Handel-Mazzetti (type).
	fig. 22.	*S. floccosa* Burkill (type).
Pl. XII.	fig. 23.	*S. magnifica* Hemsley (type).
	fig. 24.	*S. magnifiea* var. *apatela* Hao (type).
Pl. XIII.	fig. 25.	*S. omeiensis* Schneider (type).
	fig. 26.	*S. kansuensis* Hao (type).

Pl. XIV. fig. 27. *Salix amphibola* Schneider (type).
fig. 28. *S. argyrophegga* Schneider (type).
Pl. XV. fig. 29. *S. allochroa* Schneider (type).
fig. 30. *S. tenella* Schneider (type).
Pl. XVI. fig. 31. *S. tetradenia* Handel-Mazzetti (type).
fig. 32. *S. Guebrianthiana* Schneider (type).
Pl. XVII. fig. 33. *S. phanera* Schneider (type).
fig. 34. *S. bistyla* Handel-Mazzetti (type).
Pl. XVIII. fig. 35. *S. Ernesti* Schneider (type).
fig. 36. *S. phaidima* Schneider (type).
Pl. XIX. fig. 37. *S. plocyotricha* Schneider (type).
fig. 38. *S. Forrestii* Hao (type).
Pl. XX. fig. 39. *S. athopantha* Schneider.
fig. 40. *S. erioclada* Léveillé (type).
Pl. XXI. fig. 41. *S. jessoensis* Seemen (type).
fig. 42. *S. cupularis* Rehder (type).
Pl. XXII. fig. 43. *S. oritrepha* Schneider (type).
fig. 44. *S. amnematchinensis* Hao (type).
Pl. XXIII. fig. 45. *S. Biondiana* Seemen (type).
fig. 46. *S. characta* Schneider (type).
Pl. XXIV. fig. 47. *S. melea* Sehneider (type).
fig. 48. *S. dissa* Schneider (type).
Pl. XXV. fig. 49. *S. macroblasta* Schneider (type).
fig. 50. *S. vaccinioides* Handel-Mazzetti (type).
Pl. XXVI. fig. 51. *S. mictotricha* Schneider (type).
fig. 52. *S. hypoleuca* Seemen (type).
Pl. XXVII. fig. 53. *S. Tangii* Hao (type).
fig. 54. *S. polyclona* Schneider (type).
Pl. XXVIII. fig. 55. *S. rhoophila* Schneider (type).
fig. 56. *S. pseudowolohoensis* Hao (type).
Pl. XXIX. fig. 57. *S. caloneura* Schneider (type).
fig. 58. *S. Rehderiana* Schneider (type).
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fig. 60. *S. Chingiana* Hao (type).
Pl. XXXI. fig. 61. *S. spathulifolia* Seemen (type).
fig. 62. *S. chigungensis* Schneider (type).
Pl. XXXII. fig. 63. *S. polia* Schneider (type).
fig. 64. *S. obscura* Andersson (type).
Pl. XXXIII. fig. 65. *S. sikkimensis* Andersson (type).
fig. 66. *S. caprea* var. *dentata* Hao (type).
Pl. XXXIV. fig. 67. *S. caprea* var. *sinica* Hao (type).
fig. 68. *S. salwinensis* Handel-Mazzetti (type).
Pl. XXXV. fig. 69. *S. praticola* Handel-Mazzetti (type).
fig. 70. *S. driophila* Schneider (type).
Pl. XXXVI. fig. 71. *S. resecta* Diels (type).
fig. 72. *S. Wuiana* Hao (type).
Pl. XXXVII. fig. 73. *S. wolohoensis* Schneider (type).
fig. 74. *S. Balfouriana* Schneider (type).
Pl.XXXVIII. fig. 75. *S. inamoena* Handel-Mazzetti (type).
fig. 76. *S. dolia* Schneider (type).

Pl. XXXIX. fig. 77. *Salix lamashanensis* Hao (type).
fig. 78. *S. Siuzevii* Seemen (type).
Pl. XL. fig. 79. *S. cheilophila* Schneider (type).
fig. 80. *S. hupehensis* Hao (type).
Pl. XLI. fig. 81. *S. dibapha* Schneider (type).
fig. 82. *S. hylonoma* Schneider (type).
Pl. XLII. fig. 83. *S. andropogon* Léveillé (type).
fig. 84. *S. Schneideriana* Hao (type).
Pl. XLIII. fig. 85. *S. lepidostachys* Seemen (type).
fig. 86. *S. Miyabeana* Seemen (type).
Pl. XLIV. fig. 87. *S. amnematchinensis* (Hao) im Süd-Kokonor-[Gebirge.
fig. 88. *S. cheilophila* Schneider on sandy dunes in [Mongolia.

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fig. 1. *Salix angiolepis* Léveillé (type).

fig. 2. *Salix Wilsoni* Seemen (type).

fig. 3. *Salix dictyoneura* Seemen (type).

fig. 4. *Salix Rosthornii* Seemen (type).

fig. 5. *Salix Dunnii* Schneider (type).

fig. 6. *Salix araeostachya* Schneider (type).

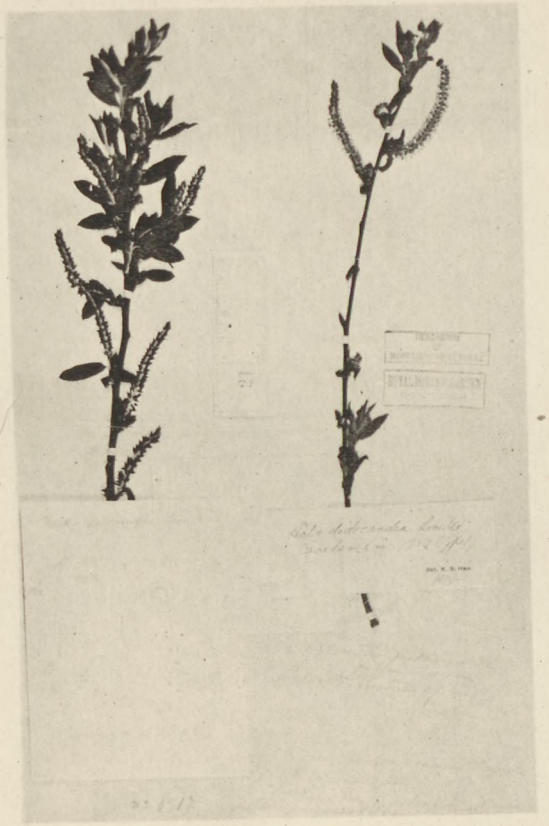

fig. 7. *Salix dodecandra* Léveillé (type).

fig. 8. *Salix eucalyptoides* Meyer (type).

fig. 9. *Salix glandulosa* Seemen (type).

fig. 10. *Salix paraplesia* Schneider (type).

fig. 11. *Salix crenata* Hao (type).

fig. 12. *Salix hirticaulis* Handel-Mazetti (type).

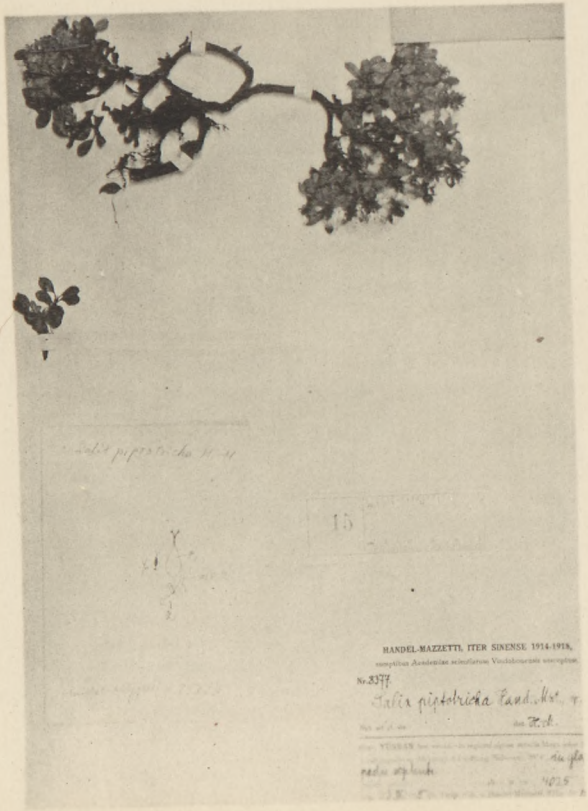

fig. 13. *Salix piptotricha* Handel-Mazetti (type).

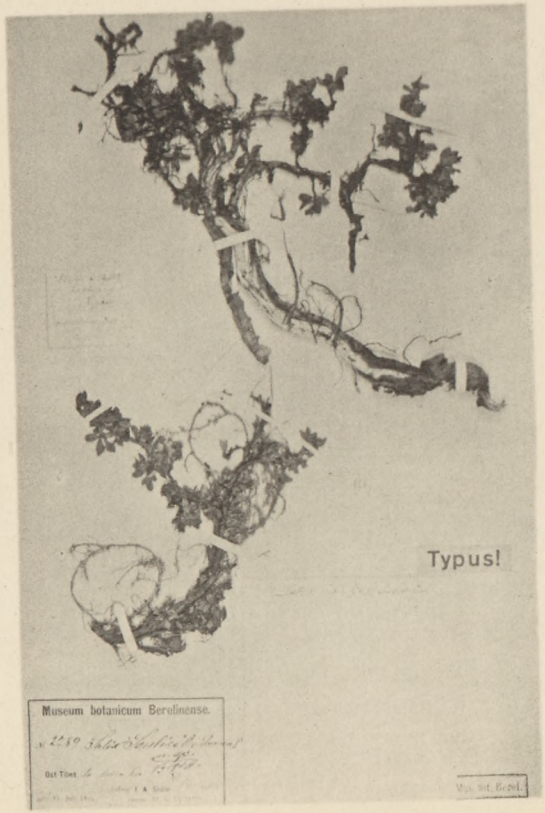

fig. 14. *Salix Souliei* Seemen (type).

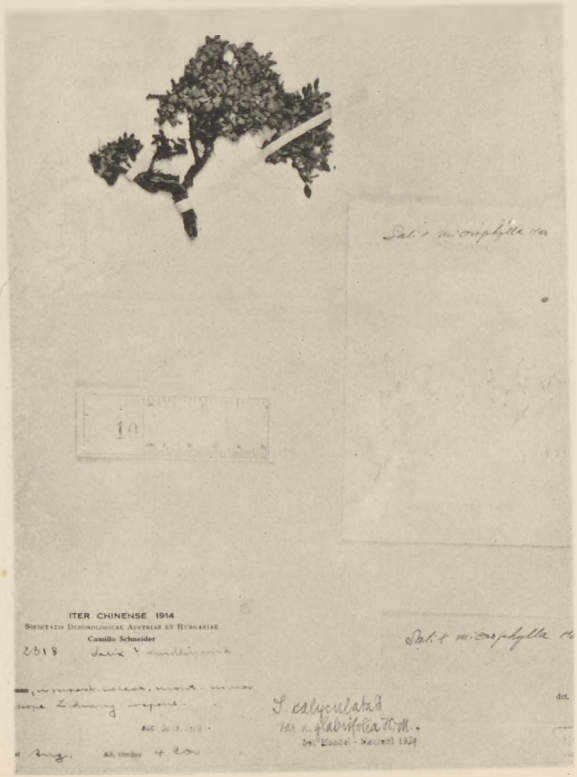

fig. 15. *Salix ovatomicrophylla* Hao (type).

fig. 16. *Salix acuminatomicrophylla* Hao (type).

fig. 17. *Salix oreinoma* Schneider (type).

fig. 18. *Salix resectoides* Handel-Mazetti (type).

fig. 19. *Salix annulifera* Marquand (type).

fig. 20. *Salix Faxoniana* Schneider (type).

fig. 21. *Salix coggygria* Handel-Mazetti (type).

fig. 22. *Salix floccosa* Burkill (type).

fig. 23. *Salix magnifica* Hemsley (type).

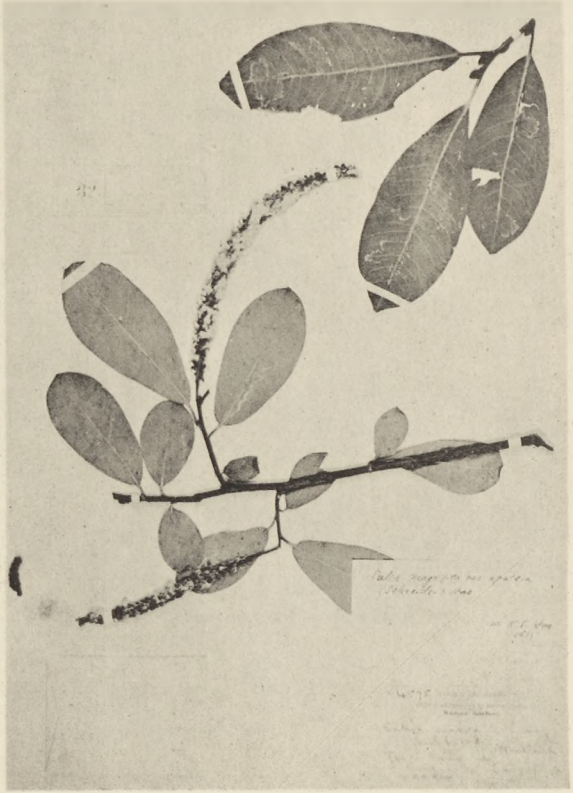

fig. 24. *Salix magnifica* var. *apatela* Hao (type).

fig. 25. *Salix omeiensis* Schneider (type).

fig. 26. *Salix kansuensis* Hao (type).

fig. 27. *Salix amphibola* Schneider (type).

fig. 28. *Salix argyrophegga* Schneider (type).

fig. 29. *Salix allochroa* Schneider (type).

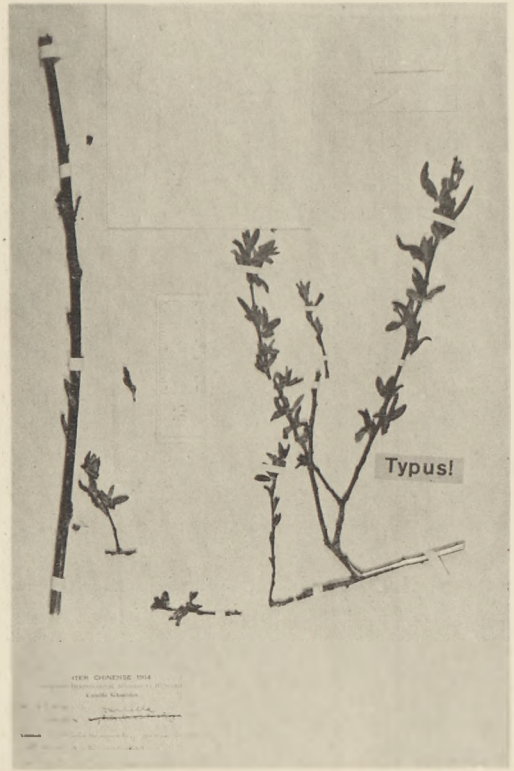

fig. 30. *Salix tenella* Schneider (type).

fig. 31. *Salix tetradenia* Handel-Mazzetti (type)

fig. 32. *Salix Guebrianthiana* Schneider (type)

fig. 33. *Salix phanera* Schneider (type).

fig. 34. *Salix bistyla* Handel-Mazzetti (type)

fig. 35. *Salix Ernesti* Schneider (type).

fig. 36. *Salix phaidima* Schneider (type).

fig. 37. *Salix plochotricha* Schneider (type).

fig. 38. *Salix Forrestii* Hao (type).

fig. 39. *Salix atopantha* Schneider (type).

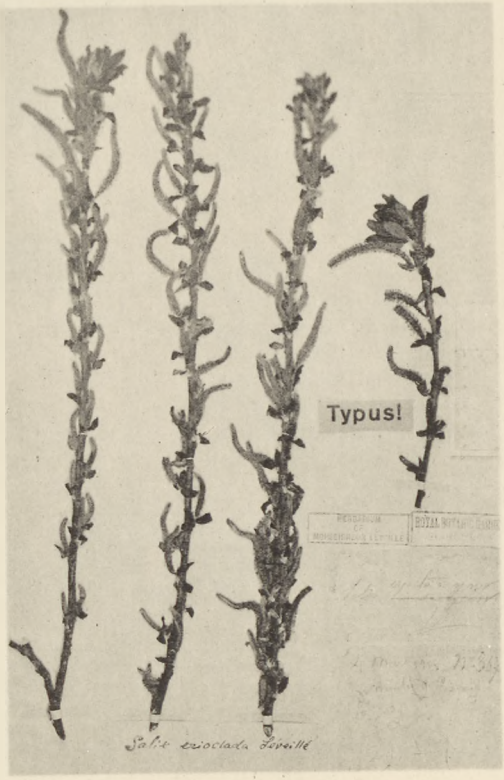

fig. 40. *Salix erioclada* Léveillé (type).

fig. 41. *Salix jessoensis* Seemen (type).

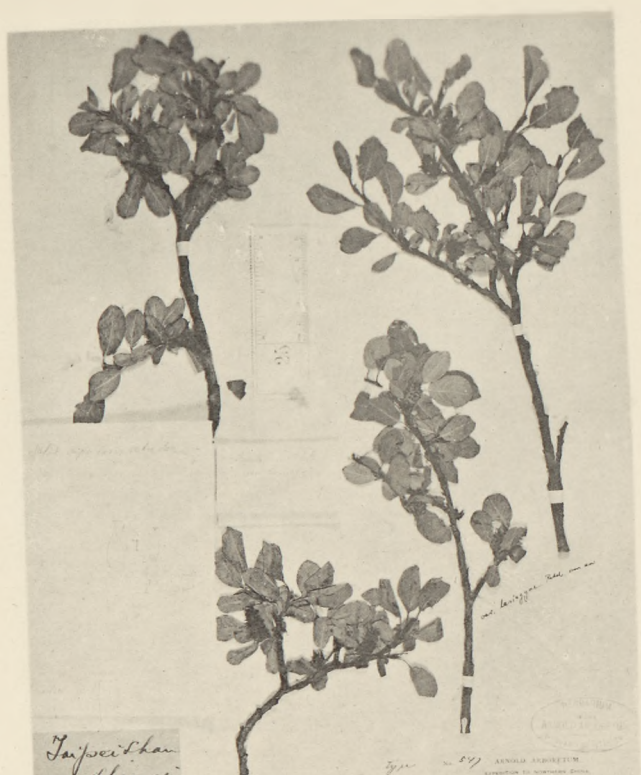

fig. 42. *Salix cupularis* Rehder (type).

fig. 43. *Salix oritrepha* Schneider (type).

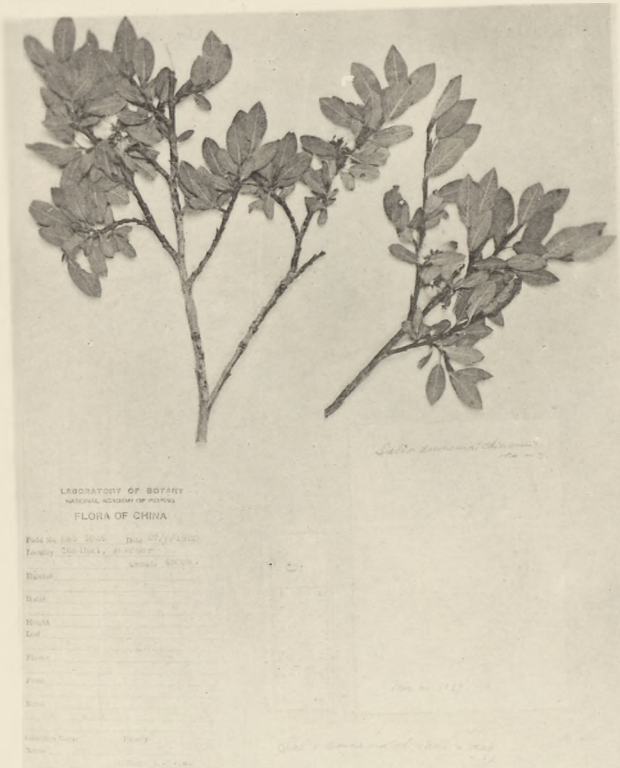

fig. 44. *Salix amnematchinensis* Hao (type).

fig. 45. *Salix Biondiana* Seemen (type).

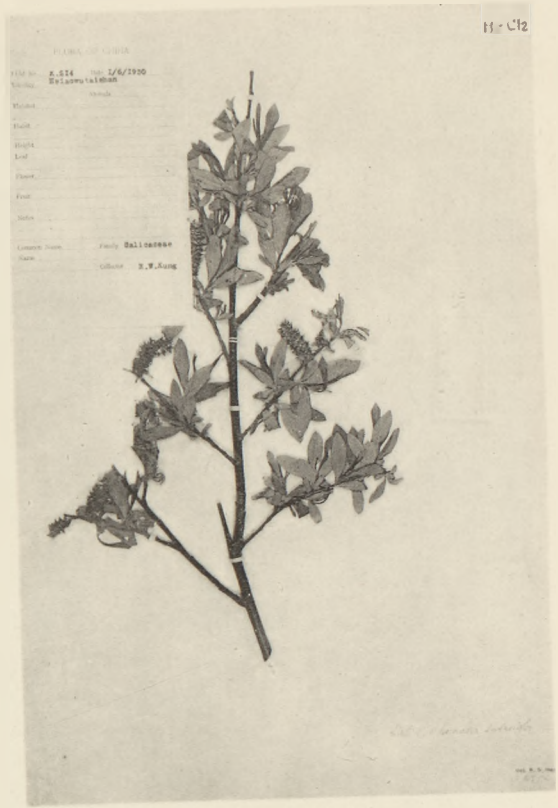

fig. 46. *Salix characta* Schneider (topo type).

fig. 47. *Salix melea* Schneider (type).

fig. 48. *Salix dissa* Schneider (type).

fig. 49. *Salix macroblasta* Schneider (type).

fig. 50. *Salix vaccinioides* Handel-Mazzetti (type).

fig. 51. *Salix mictotricha* Schneider (type).

fig. 52. *Salix hypoleuca* Seemen (type).

fig. 53. *Salix Tangii* Hao (type).

fig. 54. *Salix polyclona* Schneider (type).

fig. 55. *Salix rhoophila* Schneider (type).

fig. 56. *Salix pseudowolohoensis* Hao (type).

fig. 57. *Salix caloneura* Schneider (type).

fig. 58. *Salix Rehderiana* Schneider (type).

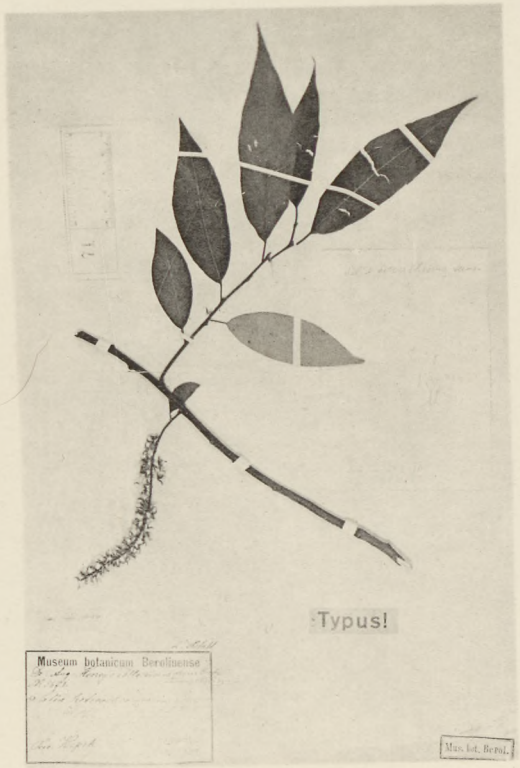

fig. 59. *Salix heterochroma* Seemen (type).

fig. 60. *Salix Chingiana* Hao (type).

fig. 61. *Salix spathulifolia* Seemen (type).

fig. 62. *Salix chigungensis* Schneider (type).

fig. 63. *Salix polia* Schneider (type).

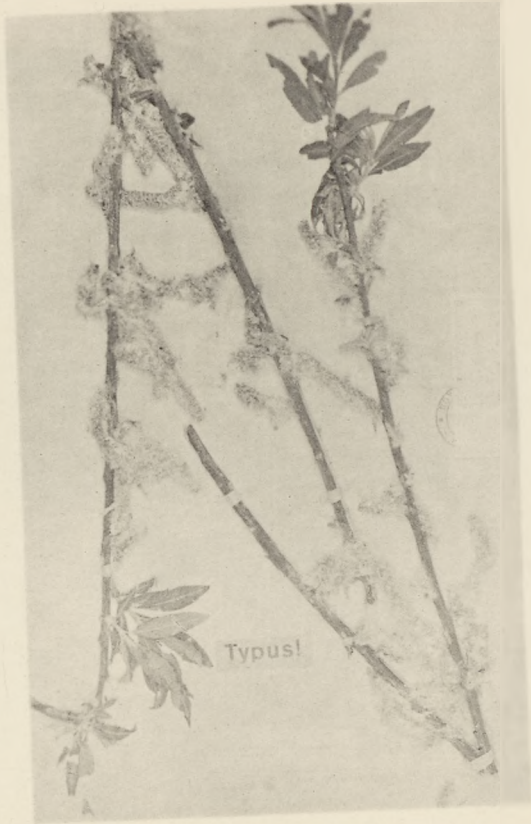

fig. 64. *Salix obscura* Andersson (type).

fig. 65. *Salix sikkimensis* Andersson (type).

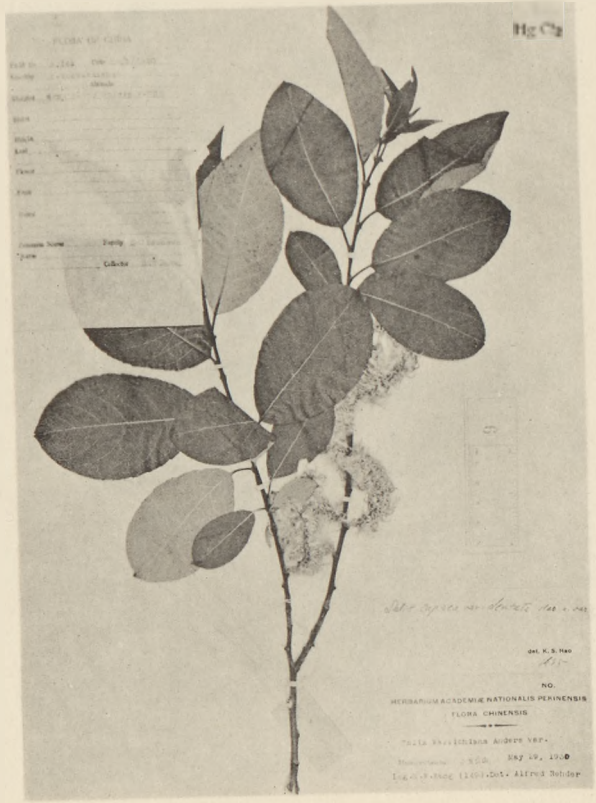

fig. 66. *Salix caprea* var. *dentata* Hao (type).

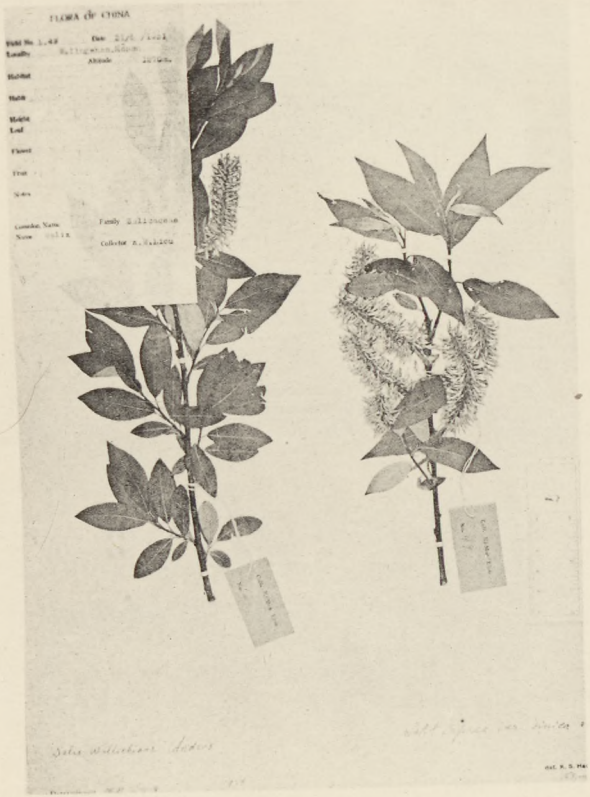

fig. 67. *Salix caprea* var. *sinica* Hao (type).

fig. 68. *Salix salwinensis* Handel-Mazzetti (type).

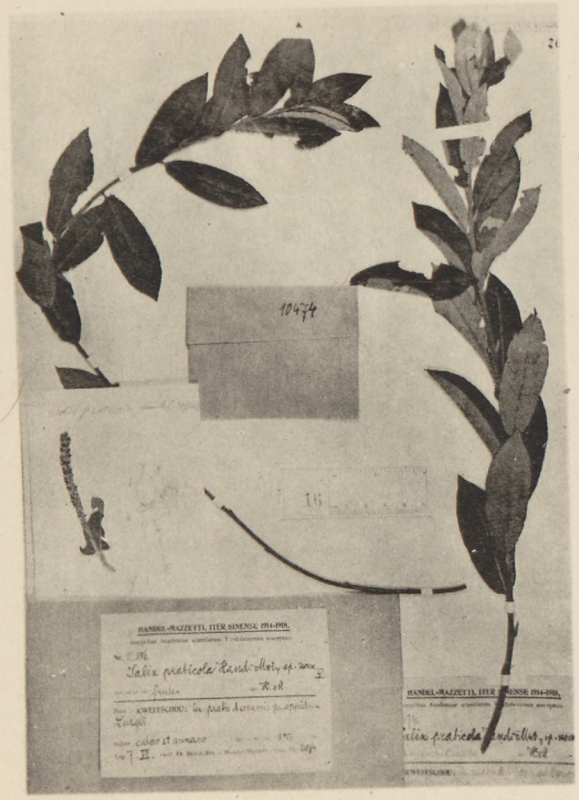

fig. 69. *Salix praticola* Handel-Mazzetti (type).

fig. 70. *Salix driophila* Schneider (type).

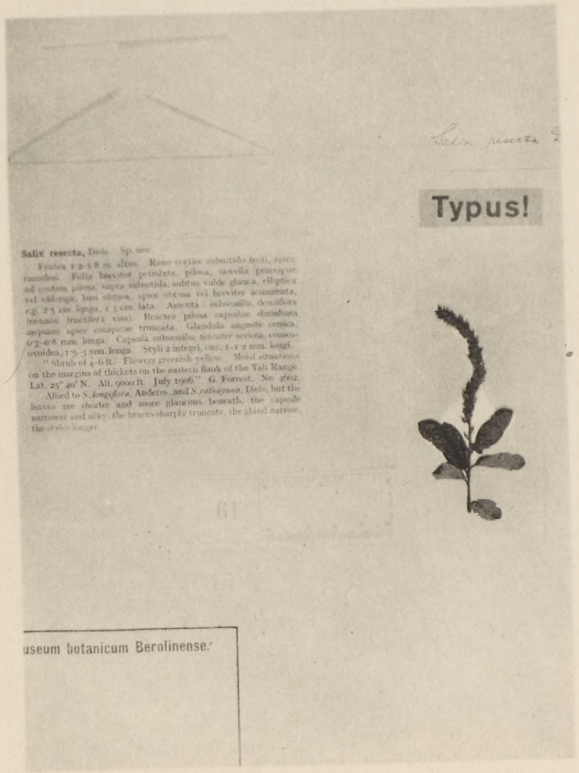

fig. 71. *Salix resecta* Diels (type).

fig. 72. *Salix Wuiana* Hao (type).

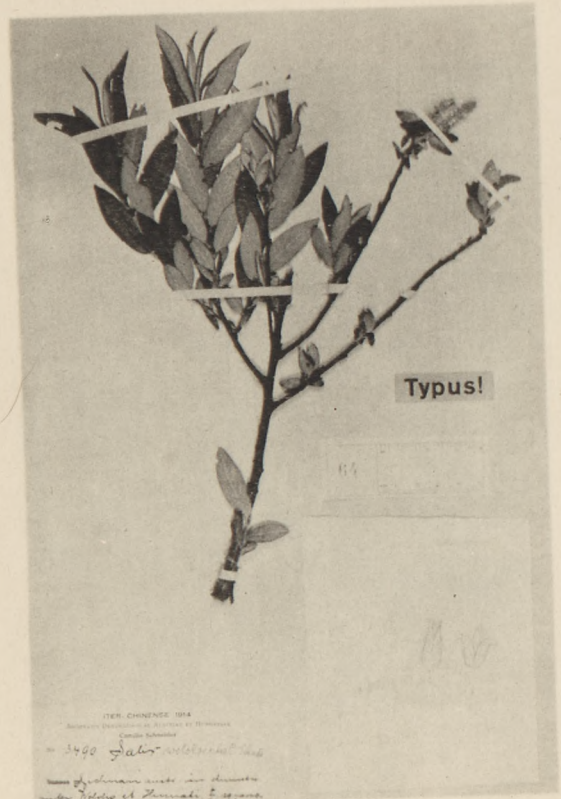

fig. 73. *Salix wolohoensis* Schneider (type).

fig. 74. *Salix Balfouriana* Schneider (type).

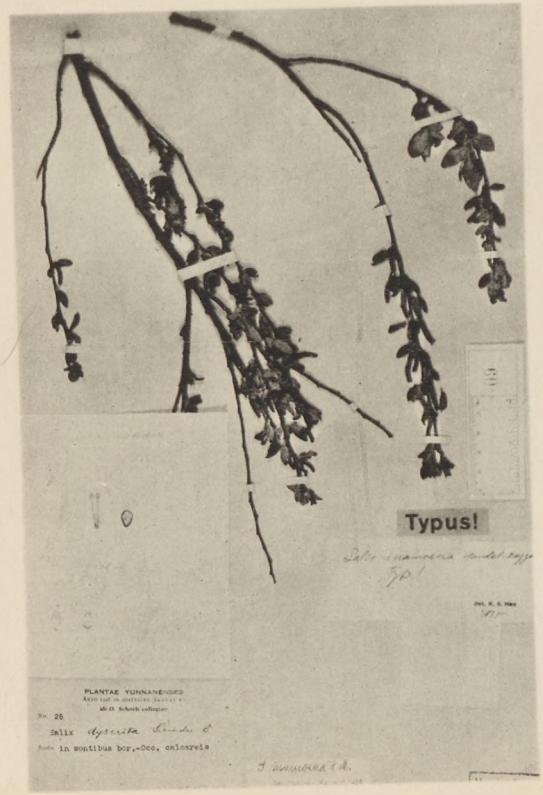

fig. 75. *Salix inamoena* Handel-Mazzetti (type).

fig. 76. *Salix dolia* Schneider (type)

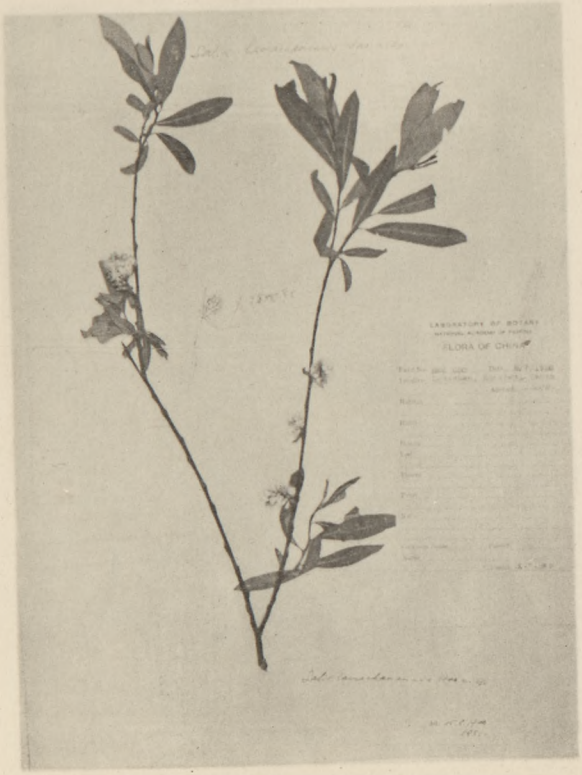

fig. 77. *Salix lamashanensis* Hao (type).

fig. 78. *Salix Siuzevii* Seemen (type).

fig. 79. *Salix cheilophila* Schneider (type).

fig. 80. *Salix hupehensis* Hao (type).

fig. 81. *Salix dibapha* Schneider (type).

fig. 82. *Salix hylonoma* Schneider (type).

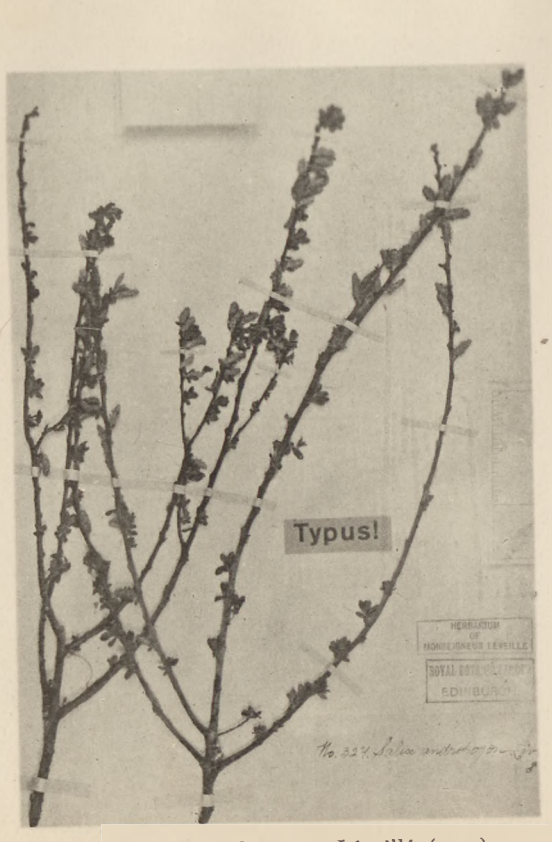

fig. 83. *Salix andropogon* Léveillé (type).

fig. 84. *Salix Schneideriana* Hao (type).

fig. 85. *Salix lepidostachys* Seemen (type).

fig. 86. *Salix Miyabeana* Seemen (type).

fig. 87. *Salix amnematchinensis* Hao in Süd-Kokonor-Gebirge.
Phot. Hao.

fig. 88. *Salix cheilophila schneid.* on sandy dunes in Mongolia.
Phot. Hsia.

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